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<120> Regulated Angiogenesis Genes and Polypeptides

<130> 1U 103 R1

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<170> PatentIn version 3.1

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Phe Val Gly Gly Ile Lys Glu Asp Thr Glu Glu Tyr Asn Leu Arg Asp
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His Asp Thr Val Asp Lys Ile Val Val Gln Lys Tyr His Thr Ile Asn
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Gly His Asn Cys Glu Val Lys Lys Ala Leu Ser Lys Gln Glu Met Gln
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Asp Ser Leu Arg Glu His Phe Glu Lys Trp Gly Thr Leu Thr Asp Cys
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Val Val Met Arg Asp Pro Gln Thr Lys Arg Ser Arg Gly Phe Gly Phe
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Pro His Lys Val Asp Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser
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Arg Glu Asp Ser Val Lys Pro Gly Ala His Leu Thr Val Lys Lys Ile
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Phe Val Gly Gly Ile Lys Glu Asp Thr Glu Glu Tyr Asn Leu Arg Asp
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Tyr Phe Glu Lys Tyr Gly Lys Ile Glu Thr Ile Glu Val Met Glu Asp
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His Asp Thr Val Asp Lys Ile Val Val Gln Lys Tyr His Thr Ile Asn
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Gly His Asn Cys Glu Val Lys Lys Ala Leu Ser Lys Gln Glu Met Gln
            195   200   205

Ser Ala Gly Ser Gln Arg Gly Arg Gly Gly Gly Ser Gly Asn Phe Met
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Gly Arg Gly Gly Asn Phe Gly Gly Gly Gly Asn Phe Gly Arg Gly
225   230   235   240

Gly Asn Phe Gly Gly Arg Gly Gly Tyr Gly Gly Gly Gly Gly Ser
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Arg Gly Ser Tyr Gly Gly Gly Asp Gly Gly Tyr Asn Gly Phe Gly Gly
            260   265   270

Asp Gly Gly Asn Tyr Gly Gly Gly Pro Gly Tyr Ser Ser Arg Gly Gly
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Tyr Gly Gly Gly Gly Pro Gly Tyr Gly Asn Gln Gly Gly Gly Tyr Gly
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Gly Gly Gly Gly Tyr Asp Gly Tyr Asn Glu Gly Gly Asn Phe Gly Gly
305   310   315   320

Gly Asn Tyr Gly Gly Gly Gly Asn Tyr Asn Asp Phe Gly Asn Tyr Ser
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Ala Leu Asp Val Asp Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly His
15                  20                  25                  30

ggc gag tat ctg cag cag cag caa cag cac gga aac ggt gcg gtg gcg      324
Gly Glu Tyr Leu Gln Gln Gln Gln Gln His Gly Asn Gly Ala Val Ala
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Ala Ala Ala Ala Ala Gln Asp Thr Gln Pro Ser Pro Leu Ala Leu Leu
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Ala Ala Thr Cys Ser Lys Ile Gly Pro Pro Ser Pro Gly Asp Asp Glu
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Glu Glu Ala Ala Ala Ala Ala Gly Ala Pro Ala Ala Ala Gly Ala Thr
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Gly Asp Leu Ala Ser Ala Gln Leu Gly Gly Ala Pro Asn Arg Trp Glu
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Val Leu Ser Ala Thr Pro Thr Thr Ile Lys Asp Glu Ala Gly Asn Leu
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Val Gln Ile Pro Ser Ala Ala Thr Ser Ser Gly Gln Tyr Val Leu Pro
            130                 135                 140

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gat tca tca aat ggt gca gtg tcc agt gtt caa tat caa gtg ata cca      708
Asp Ser Ser Asn Gly Ala Val Ser Ser Val Gln Tyr Gln Val Ile Pro
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cag atc cag tca gca gat ggt cag cag gtt caa att ggt ttc aca ggc      756
Gln Ile Gln Ser Ala Asp Gly Gln Gln Val Gln Ile Gly Phe Thr Gly
175                 180                 185                 190

tct tca gat aat ggg ggt ata aat caa gaa agc agt caa att cag atc      804
Ser Ser Asp Asn Gly Gly Ile Asn Gln Glu Ser Ser Gln Ile Gln Ile
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gtt gca att ggt ggt tca tct ttt cct ggt caa acc caa gta gtt gct        948
Val Ala Ile Gly Gly Ser Ser Phe Pro Gly Gln Thr Gln Val Val Ala
    240                 245                 250

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255                 260                 265                 270

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Ser Val Asp Leu Asp Ser Leu Gly Leu Ser Gly Ser Ser Gln Thr Met
                275                 280                 285

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Thr Ala Gly Ile Asn Ala Asp Gly His Leu Ile Asn Thr Gly Gln Ala
            290                 295                 300

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Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu Arg Val Ser Pro
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gat att aat gaa act aat act gat aca gat tta ttt gtg cca aca tcc       1188
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    320                 325                 330

tct tca tca cag ttg cct gtt acg ata gat agt aca ggt ata tta caa       1236
Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser Thr Gly Ile Leu Gln
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caa aac aca aat agc ttg act aca tct agt ggg cag gtt cat tct tca       1284
Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln Val His Ser Ser
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gat ctt cag gga aat tat atc cag tcg cct gtt tct gaa gag aca cag       1332
Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser Glu Glu Thr Gln
            370                 375                 380

gca cag aat att cag gtt tct aca gca cag cct gtt gta cag cat cta       1380
Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro Val Val Gln His Leu
            385                 390                 395

caa ctt caa gag tct cag cag cca acc agt caa gcc caa att gtg caa       1428
Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala Gln Ile Val Gln
    400                 405                 410

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Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln Ala Ser Gly Gln Asn
415                 420                 425                 430

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Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln Leu Asn Pro Gly
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acc ttt tta att cag gca cag aca gtg acc cct tct gga cag gta act       1572
Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro Ser Gly Gln Val Thr
                450                 455                 460

tgg caa acg ttt caa gta caa ggg gtc cag aac ttg cag aat ttg caa       1620
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ctc aca ctt ggt caa gtt gcg gca ggt gga gcc ttc act tca act cca        1716
Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala Phe Thr Ser Thr Pro
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His Leu Arg Val Gln Val Val Asp Glu Glu Gly Asp Gln Gln His Gln
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tca aaa cgc ttt atg aga agt gac cac ctt gcc aaa cat att aaa aca        2292
Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala Lys His Ile Lys Thr
                690                     695                     700

cac cag aat aaa aaa ggt att cac tct agc agt aca gtg ctg gca tct        2340
His Gln Asn Lys Lys Gly Ile His Ser Ser Ser Thr Val Leu Ala Ser
                705                     710                     715

gtg gaa gct gcg cga gat gat act ttg att act gca gga gga aca acg        2388
Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala Gly Gly Thr Thr
```

```
ctt atc ctt gca aag att caa caa ggt tct gtt tca ggg ata gga act    2436
Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val Ser Gly Ile Gly Thr
735                     740                     745                 750

gtt aat act tcc gcc acc agc aat caa gat atc ctt acc aac act gaa    2484
Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu Thr Asn Thr Glu
                        755                     760                 765

ata cct tta cag ctt gtc aca gtt tct gga aat gag aca atg gag        2529
Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn Glu Thr Met Glu
                770                     775                 780
```

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taaatattac acaaatactt attcattgtg gttattttta tacagtagtg agaagaatat    2589

tgttcctaag ttcttagata tcttttttatt gatgtgcaaa aattttttgga ttgacagtaa    2649

cttggttata catgacactg aaatgcctta ctttgtatga tattccatag tatattaaaa    2709

atggtaaaat tgcatgggtt ttgtaggtac ttttggaatc tagaagaaat gaaattttac    2769

caagttatat aaagagaaaa ttgaatttaa caatgcgaat ggtagtctaa ccaaatgcat    2829

caatcctgtg tggtttagtg taaaaatgag aacatgttgg tatttatcta ttgtaagata    2889

aaaaagctgg tgggtgaaag aaatcatgtt atgataaaaa attttgtaat tttcttgatg    2949

actggaattt ttattatgca taactgacaa atcaagtttc caagcaaatg ttacatagtg    3009

taggctttac ttagcttatc aatttgtcat tttgaagcta attattttaa ttaggttaac    3069

tatgtacaat attttaagca ttactcttgt aagatttttga aaactacatt ttaacatgga    3129

actctaggga tagtcacctt ttaaatcctg ttgaaaagcc atgtttaaga tttaatttgc    3189

caaaataatg tcttgttaat attctttcaa taacgaagtt gggcaatata accaatgttt    3249

aaaaaagttt aaaatgtata agttgaggca tttgggtggt aagagaatgt tatagtgaat    3309

tatcccttttt cttgactatt ggaggaccaa aaaataaggt gtattgcgtc ttagcagtga    3369

ttttatccaa tcttgtttcc aaaaaccatg gtctcccagg gccttaaaag ccatcatgta    3429

aattaccagt aaagtgtaac atatgcaaac ataacaaaat cacttccata gtgacgatac    3489

tccaaccata tggatattag tcatagaaga actagaggtt ttatgatatt tttttaagtc    3549

ttttttttt gtctaggtag tcagtctgca cttaaatatc aatcattttc ctttttttgct    3609

tcttccctta aaatttatat gtatccagta catttaattg agaagcgtat gttttttatt    3669

atgctgtatt ttcttttttat ttttttaatta ttgtttatat tttcaattca aaaatgtaca    3729

aaataaagtt acattgctgg tctgtgtaag agctatacag ttttcctaaa tgtatacctg    3789

taactgcagc agttcaccta tttgcaaaaa tttggaattc tgttcatttg ttattcttaa    3849

gaccacctca aatttaaagg ctaccttatt gtacgtttaa agtgtattat aacagtgtgg    3909

tagttaataa aacactattt tttttctttt tgaaaaaaaa aaaaaaaaaa aaaaaaaaaa    3969

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Met Thr Ala Pro Glu Lys Pro Val Lys Gln Glu Glu Met Ala Ala Leu
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Asp Val Asp Ser Gly Gly Gly Gly Gly Gly Gly Gly His Gly Glu
                20   25   30

Tyr Leu Gln Gln Gln Gln Gln His Gly Asn Gly Ala Val Ala Ala Ala
            35   40   45

Ala Ala Ala Gln Asp Thr Gln Pro Ser Pro Leu Ala Leu Leu Ala Ala
        50   55   60

Thr Cys Ser Lys Ile Gly Pro Pro Ser Pro Gly Asp Asp Glu Glu Glu
65   70   75   80

Ala Ala Ala Ala Ala Gly Ala Pro Ala Ala Ala Gly Ala Thr Gly Asp
                85   90   95

Leu Ala Ser Ala Gln Leu Gly Gly Ala Pro Asn Arg Trp Glu Val Leu
            100   105   110

Ser Ala Thr Pro Thr Thr Ile Lys Asp Glu Ala Gly Asn Leu Val Gln
            115   120   125

Ile Pro Ser Ala Ala Thr Ser Ser Gly Gln Tyr Val Leu Pro Leu Gln
        130   135   140

Asn Leu Gln Asn Gln Gln Ile Phe Ser Val Ala Pro Gly Ser Asp Ser
145   150   155   160

Ser Asn Gly Ala Val Ser Ser Val Gln Tyr Gln Val Ile Pro Gln Ile
                165   170   175

Gln Ser Ala Asp Gly Gln Gln Val Gln Ile Gly Phe Thr Gly Ser Ser
            180   185   190

Asp Asn Gly Gly Ile Asn Gln Glu Ser Ser Gln Ile Gln Ile Ile Pro
        195   200   205

Gly Ser Asn Gln Thr Leu Leu Ala Ser Gly Thr Pro Ser Ala Asn Ile
        210   215   220

Gln Asn Leu Ile Pro Gln Thr Gly Gln Val Gln Val Gln Gly Val Ala
225   230   235   240

Ile Gly Gly Ser Ser Phe Pro Gly Gln Thr Gln Val Val Ala Asn Val
                245   250   255

Pro Leu Gly Leu Pro Gly Asn Ile Thr Phe Val Pro Ile Asn Ser Val
                260   265   270

Asp Leu Asp Ser Leu Gly Leu Ser Gly Ser Ser Gln Thr Met Thr Ala
            275   280   285

Gly Ile Asn Ala Asp Gly His Leu Ile Asn Thr Gly Gln Ala Met Asp
    290   295   300

Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu Arg Val Ser Pro Asp Ile
305   310   315   320

Asn Glu Thr Asn Thr Asp Thr Asp Leu Phe Val Pro Thr Ser Ser Ser
            325   330   335

Ser Gln Leu Pro Val Thr Ile Asp Ser Thr Gly Ile Leu Gln Gln Asn
            340   345   350

Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln Val His Ser Ser Asp Leu
    355   360   365

Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser Glu Glu Thr Gln Ala Gln
    370   375   380

Asn Ile Gln Val Ser Thr Ala Gln Pro Val Val Gln His Leu Gln Leu
385   390   395   400

Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala Gln Ile Val Gln Gly Ile
            405   410   415

Thr Pro Gln Thr Ile His Gly Val Gln Ala Ser Gly Gln Asn Ile Ser
            420   425   430

Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln Leu Asn Pro Gly Thr Phe
    435   440   445

Leu Ile Gln Ala Gln Thr Val Thr Pro Ser Gly Gln Val Thr Trp Gln
    450   455   460

Thr Phe Gln Val Gln Gly Val Gln Asn Leu Gln Asn Leu Gln Ile Gln
465   470   475   480

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Asn Thr Ala Ala Gln Gln Ile Thr Leu Thr Pro Val Gln Thr Leu Thr
                485                 490                 495

Leu Gly Gln Val Ala Ala Gly Gly Ala Phe Thr Ser Thr Pro Val Ser
            500                 505                 510

Leu Ser Thr Gly Gln Leu Pro Asn Leu Gln Thr Val Thr Val Asn Ser
        515                 520                 525

Ile Asp Ser Ala Gly Ile Gln Leu His Pro Gly Glu Asn Ala Asp Ser
    530                 535                 540

Pro Ala Asp Ile Arg Ile Lys Glu Glu Glu Pro Asp Pro Glu Glu Trp
545                 550                 555                 560

Gln Leu Ser Gly Asp Ser Thr Leu Asn Thr Asn Asp Leu Thr His Leu
            565                 570                 575

Arg Val Gln Val Val Asp Glu Glu Gly Asp Gln Gln His Gln Glu Gly
        580                 585                 590

Lys Arg Leu Arg Arg Val Ala Cys Thr Cys Pro Asn Cys Lys Glu Gly
        595                 600                 605

Gly Gly Arg Gly Thr Asn Leu Gly Lys Lys Lys Gln His Ile Cys His
    610                 615                 620

Ile Pro Gly Cys Gly Lys Val Tyr Gly Lys Thr Ser His Leu Arg Ala
625                 630                 635                 640

His Leu Arg Trp His Ser Gly Glu Arg Pro Phe Val Cys Asn Trp Met
            645                 650                 655

Tyr Cys Gly Lys Arg Phe Thr Arg Ser Asp Glu Leu Gln Arg His Arg
        660                 665                 670

Arg Thr His Thr Gly Glu Lys Lys Phe Val Cys Pro Glu Cys Ser Lys
        675                 680                 685

Arg Phe Met Arg Ser Asp His Leu Ala Lys His Ile Lys Thr His Gln
    690                 695                 700

Asn Lys Lys Gly Ile His Ser Ser Ser Thr Val Leu Ala Ser Val Glu
705                 710                 715                 720

Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala Gly Gly Thr Thr Leu Ile
            725                 730                 735
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Leu Ala Lys Ile Gln Gln Gly Ser Val Ser Gly Ile Gly Thr Val Asn
        740   745   750

Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu Thr Asn Thr Glu Ile Pro
        755   760   765

Leu Gln Leu Val Thr Val Ser Gly Asn Glu Thr Met Glu
    770   775   780

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aaaatccccg gaccgctccg gccgtgtccg ccgccgcttc ccgcatcctc tcccgccgcc   120

gccgccttcg ctcctcacca tgtgtaaggc ggcggggagc cccgcctgag gtgccctaaa   180

cacact atg acc gct ccc gaa aag ccc gtg aaa caa gag gaa atg gct   228
       Met Thr Ala Pro Glu Lys Pro Val Lys Gln Glu Glu Met Ala
        1   5   10

gcc ttg gac gtg gat agc ggc ggc ggc ggt ggc ggc ggc ggc ggc cac   276
Ala Leu Asp Val Asp Ser Gly Gly Gly Gly Gly Gly Gly Gly Gly His
15   20   25   30

ggc gag tat ctg cag cag cag caa cag cac gga aac ggt gcg gtg gcg   324
Gly Glu Tyr Leu Gln Gln Gln Gln Gln His Gly Asn Gly Ala Val Ala
                35   40   45

gcg gca gcg gcg gcc cag aca ggt gat ttg gct tct gca cag tta gga   372
Ala Ala Ala Ala Ala Gln Thr Gly Asp Leu Ala Ser Ala Gln Leu Gly
            50   55   60

gga gca cca aac cga tgg gag gtt ttg tca gcc aca cct aca act ata   420
Gly Ala Pro Asn Arg Trp Glu Val Leu Ser Ala Thr Pro Thr Thr Ile
        65   70   75

aaa gat gaa gct ggt aat cta gtc cag att cca agt gct gct act tca   468
Lys Asp Glu Ala Gly Asn Leu Val Gln Ile Pro Ser Ala Ala Thr Ser
    80   85   90

agt ggg cag tat gtt ctt ccc ctt cag aat ttg cag aat caa caa ata   516
Ser Gly Gln Tyr Val Leu Pro Leu Gln Asn Leu Gln Asn Gln Gln Ile
95   100   105   110

ttt tcc gtt gca cca gga tca gat tca tca aat ggt gca gtg tcc agt   564
Phe Ser Val Ala Pro Gly Ser Asp Ser Ser Asn Gly Ala Val Ser Ser
                115   120   125

gtt caa tat caa gtg ata cca cag atc cag tca gca gat ggt cag cag   612
Val Gln Tyr Gln Val Ile Pro Gln Ile Gln Ser Ala Asp Gly Gln Gln

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gtt caa att ggt ttc aca ggc tct tca gat aat ggg ggt ata aat caa       660
Val Gln Ile Gly Phe Thr Gly Ser Ser Asp Asn Gly Gly Ile Asn Gln
        145                 150                 155

gaa agc agt caa att cag atc att cct ggc tct aat caa acc tta ctt       708
Glu Ser Ser Gln Ile Gln Ile Ile Pro Gly Ser Asn Gln Thr Leu Leu
    160                 165                 170

gcc tct gga aca cct tct gct aac atc cag aat ctc ata cca cag act       756
Ala Ser Gly Thr Pro Ser Ala Asn Ile Gln Asn Leu Ile Pro Gln Thr
175                 180                 185                 190

ggt caa gtc cag gtt cag gga gtt gca att ggt ggt tca tct ttt cct       804
Gly Gln Val Gln Val Gln Gly Val Ala Ile Gly Gly Ser Ser Phe Pro
                195                 200                 205

ggt caa acc caa gta gtt gct aat gtg cct ctt ggt ctg cca gga aat       852
Gly Gln Thr Gln Val Val Ala Asn Val Pro Leu Gly Leu Pro Gly Asn
                210                 215                 220

att acg ttt gta cca atc aat agt gtc gat cta gat tct ttg gga ctc       900
Ile Thr Phe Val Pro Ile Asn Ser Val Asp Leu Asp Ser Leu Gly Leu
        225                 230                 235

tcg ggc agt tct cag aca atg act gca ggc att aat gcc gac gga cat       948
Ser Gly Ser Ser Gln Thr Met Thr Ala Gly Ile Asn Ala Asp Gly His
    240                 245                 250

ttg ata aac aca gga caa gct atg gat agt tca gac aat tca gaa agg       996
Leu Ile Asn Thr Gly Gln Ala Met Asp Ser Ser Asp Asn Ser Glu Arg
255                 260                 265                 270

act ggt gag cgg gtt tct cct gat att aat gaa act aat act gat aca      1044
Thr Gly Glu Arg Val Ser Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr
                275                 280                 285

gat tta ttt gtg cca aca tcc tct tca tca cag ttg cct gtt acg ata      1092
Asp Leu Phe Val Pro Thr Ser Ser Ser Ser Gln Leu Pro Val Thr Ile
                290                 295                 300

gat agt aca ggt ata tta caa caa aac aca aat agc ttg act aca tct      1140
Asp Ser Thr Gly Ile Leu Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser
                305                 310                 315

agt ggg cag gtt cat tct tca gat ctt cag gga aat tat atc cag tcg      1188
Ser Gly Gln Val His Ser Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser
        320                 325                 330

cct gtt tct gaa gag aca cag gca cag aat att cag gtt tct aca gca      1236
Pro Val Ser Glu Glu Thr Gln Ala Gln Asn Ile Gln Val Ser Thr Ala
335                 340                 345                 350

cag cct gtt gta cag cat cta caa ctt caa gag tct cag cag cca acc      1284
Gln Pro Val Val Gln His Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr
                355                 360                 365

agt caa gcc caa att gtg caa ggt att aca cca cag aca atc cat ggt      1332
Ser Gln Ala Gln Ile Val Gln Gly Ile Thr Pro Gln Thr Ile His Gly
                370                 375                 380

gtg caa gcc agt ggt caa aat ata tca caa cag gct ttg caa aat ctt      1380
Val Gln Ala Ser Gly Gln Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu
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cag ttg cag ctg aat cct gga acc ttt tta att cag gca cag aca gtg    1428
Gln Leu Gln Leu Asn Pro Gly Thr Phe Leu Ile Gln Ala Gln Thr Val
    400                 405                 410

acc cct tct gga cag gta act tgg caa acg ttt caa gta caa ggg gtc    1476
Thr Pro Ser Gly Gln Val Thr Trp Gln Thr Phe Gln Val Gln Gly Val
415                 420                 425                 430

cag aac ttg cag aat ttg caa ata cag aat act gct gcc caa caa ata    1524
Gln Asn Leu Gln Asn Leu Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile
                435                 440                 445

act ctg acg cct gtt caa acc ctc aca ctt ggt caa gtt gcg gca ggt    1572
Thr Leu Thr Pro Val Gln Thr Leu Thr Leu Gly Gln Val Ala Ala Gly
                450                 455                 460

gga gcc ttc act tca act cca gtt agt cta agc act ggt cag ttg cca    1620
Gly Ala Phe Thr Ser Thr Pro Val Ser Leu Ser Thr Gly Gln Leu Pro
            465                 470                 475

aat cta caa aca gtt aca gtg aac tct ata gat tct gct ggt ata cag    1668
Asn Leu Gln Thr Val Thr Val Asn Ser Ile Asp Ser Ala Gly Ile Gln
            480                 485                 490

cta cat cca gga gag aat gct gac agt cct gca gat att agg atc aag    1716
Leu His Pro Gly Glu Asn Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys
495                 500                 505                 510

gaa gaa gaa cct gat cct gaa gag tgg cag ctc agt ggt gat tct acc    1764
Glu Glu Glu Pro Asp Pro Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr
                515                 520                 525

ttg aat acc aat gac cta aca cac tta aga gta cag gtg gta gat gaa    1812
Leu Asn Thr Asn Asp Leu Thr His Leu Arg Val Gln Val Val Asp Glu
                530                 535                 540

gaa ggg gac caa caa cat caa gaa gga aaa aga ctt cgg agg gta gct    1860
Glu Gly Asp Gln Gln His Gln Glu Gly Lys Arg Leu Arg Arg Val Ala
                545                 550                 555

tgc acc tgt ccc aac tgt aaa gaa ggt ggt gga aga ggt acc aat ctt    1908
Cys Thr Cys Pro Asn Cys Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu
                560                 565                 570

ggg aaa aag aag caa cac att tgt cat ata cca gga tgt ggt aaa gtc    1956
Gly Lys Lys Lys Gln His Ile Cys His Ile Pro Gly Cys Gly Lys Val
575                 580                 585                 590

tat ggg aag acc tca cat ctg aga gct cat ctg cgt tgg cat tct gga    2004
Tyr Gly Lys Thr Ser His Leu Arg Ala His Leu Arg Trp His Ser Gly
                595                 600                 605

gaa cgc cct ttt gtt tgt aac tgg atg tac tgt ggt aaa aga ttt act    2052
Glu Arg Pro Phe Val Cys Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr
                610                 615                 620

cga agt gat gaa tta cag agg cac aga aga aca cat aca ggt gag aag    2100
Arg Ser Asp Glu Leu Gln Arg His Arg Arg Thr His Thr Gly Glu Lys
                625                 630                 635

aaa ttt gtt tgt cca gaa tgt tca aaa cgc ttt atg aga agt gac cac    2148
Lys Phe Val Cys Pro Glu Cys Ser Lys Arg Phe Met Arg Ser Asp His
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ctt gcc aaa cat att aaa aca cac cag aat aaa aaa ggt att cac tct     2196
Leu Ala Lys His Ile Lys Thr His Gln Asn Lys Lys Gly Ile His Ser
655                      660                      665                  670

agc agt aca gtg ctg gca tct gtg gaa gct gcg cga gat gat act ttg     2244
Ser Ser Thr Val Leu Ala Ser Val Glu Ala Ala Arg Asp Asp Thr Leu
                    675                      680                  685

att act gca gga gga aca acg ctt atc ctt gca aag att caa caa ggt     2292
Ile Thr Ala Gly Gly Thr Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly
                690                      695                  700

tct gtt tca ggg ata gga act gtt aat act tcc gcc acc agc aat caa     2340
Ser Val Ser Gly Ile Gly Thr Val Asn Thr Ser Ala Thr Ser Asn Gln
            705                      710                  715

gat atc ctt acc aac act gaa ata cct tta cag ctt gtc aca gtt tct     2388
Asp Ile Leu Thr Asn Thr Glu Ile Pro Leu Gln Leu Val Thr Val Ser
        720                      725                  730

gga aat gag aca atg gag taaatattac acaaatactt attcattgtg           2436
Gly Asn Glu Thr Met Glu
735                      740

gttattttta tacagtagtg agaagaatat tgttcctaag ttcttagata tctttttatt   2496

gatgtgcaaa aatttttgga ttgacagtaa cttggttata catgacactg aaatgcctta   2556

ctttgtatga tattccatag tatattaaaa atggtaaaat tgcatgggtt ttgtaggtac   2616

ttttggaatc tagaagaaat gaaattttac caagttatat aaagagaaaa ttgaatttaa   2676

caatgcgaat ggtagtctaa ccaaatgcat caatcctgtg tggtttagtg taaaaatgag   2736

aacatgttgg tatttatcta ttgtaagata aaaaagctgg tgggtgaaag aaatcatgtt   2796

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tttgaagcta attattttaa ttaggttaac tatgtacaat attttaagca ttactcttgt   2976

aagattttga aaactacatt ttaacatgga actctaggga tagtcacctt ttaaatcctg   3036

ttgaaaagcc atgtttaaga tttaatttgc caaaataatg tcttgttaat attctttcaa   3096

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actagaggtt ttatgatatt tttttaagtc tttttttttt gtctaggtag tcagtctgca   3456

cttaaatatc aatcattttc cttttttgct tcttcccta aaatttatat gtatccagta    3516

catttaattg agaagcgtat gtttttattt atgctgtatt ttctttttat tttttaatta   3576
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agctatacag ttttcctaaa tgtatacctg taactgcagc agttcaccta tttgcaaaaa 3696

tttggaattc tgttcatttg ttattcttaa gaccacctca aatttaaagg ctaccttatt 3756

gtacgtttaa agtgtattat aacagtgtgg tagttaataa aacactattt ttttttcttt 3816

tgaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 3862

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Met Thr Ala Pro Glu Lys Pro Val Lys Gln Glu Glu Met Ala Ala Leu
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Asp Val Asp Ser Gly Gly Gly Gly Gly Gly Gly Gly His Gly Glu
            20                  25                  30


Tyr Leu Gln Gln Gln Gln Gln His Gly Asn Gly Ala Val Ala Ala Ala
        35                  40                  45


Ala Ala Ala Gln Thr Gly Asp Leu Ala Ser Ala Gln Leu Gly Gly Ala
    50                  55                  60


Pro Asn Arg Trp Glu Val Leu Ser Ala Thr Pro Thr Thr Ile Lys Asp
65                  70                  75                  80


Glu Ala Gly Asn Leu Val Gln Ile Pro Ser Ala Ala Thr Ser Ser Gly
                85                  90                  95


Gln Tyr Val Leu Pro Leu Gln Asn Leu Gln Asn Gln Gln Ile Phe Ser
            100                 105                 110


Val Ala Pro Gly Ser Asp Ser Ser Asn Gly Ala Val Ser Ser Val Gln
        115                 120                 125


Tyr Gln Val Ile Pro Gln Ile Gln Ser Ala Asp Gly Gln Gln Val Gln
    130                 135                 140


Ile Gly Phe Thr Gly Ser Ser Asp Asn Gly Gly Ile Asn Gln Glu Ser
145                 150                 155                 160


Ser Gln Ile Gln Ile Ile Pro Gly Ser Asn Gln Thr Leu Leu Ala Ser
                165                 170                 175


Gly Thr Pro Ser Ala Asn Ile Gln Asn Leu Ile Pro Gln Thr Gly Gln
            180                 185                 190
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Val Gln Val Gln Gly Val Ala Ile Gly Gly Ser Ser Phe Pro Gly Gln
        195   200   205

Thr Gln Val Val Ala Asn Val Pro Leu Gly Leu Pro Gly Asn Ile Thr
        210   215   220

Phe Val Pro Ile Asn Ser Val Asp Leu Asp Ser Leu Gly Leu Ser Gly
225   230   235   240

Ser Ser Gln Thr Met Thr Ala Gly Ile Asn Ala Asp Gly His Leu Ile
                245   250   255

Asn Thr Gly Gln Ala Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly
                260   265   270

Glu Arg Val Ser Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr Asp Leu
                275   280   285

Phe Val Pro Thr Ser Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser
        290   295   300

Thr Gly Ile Leu Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly
305   310   315   320

Gln Val His Ser Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val
                325   330   335

Ser Glu Glu Thr Gln Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro
                340   345   350

Val Val Gln His Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln
        355   360   365

Ala Gln Ile Val Gln Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln
        370   375   380

Ala Ser Gly Gln Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu
385   390   395   400

Gln Leu Asn Pro Gly Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro
                405   410   415

Ser Gly Gln Val Thr Trp Gln Thr Phe Gln Val Gln Gly Val Gln Asn
                420   425   430

Leu Gln Asn Leu Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile Thr Leu
        435   440   445

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Thr Pro Val Gln Thr Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala
    450                 455                 460

Phe Thr Ser Thr Pro Val Ser Leu Ser Thr Gly Gln Leu Pro Asn Leu
465                 470                 475                 480

Gln Thr Val Thr Val Asn Ser Ile Asp Ser Ala Gly Ile Gln Leu His
                485                 490                 495

Pro Gly Glu Asn Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys Glu Glu
                500                 505                 510

Glu Pro Asp Pro Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr Leu Asn
            515                 520                 525

Thr Asn Asp Leu Thr His Leu Arg Val Gln Val Val Asp Glu Glu Gly
    530                 535                 540

Asp Gln Gln His Gln Glu Gly Lys Arg Leu Arg Arg Val Ala Cys Thr
545                 550                 555                 560

Cys Pro Asn Cys Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu Gly Lys
                565                 570                 575

Lys Lys Gln His Ile Cys His Ile Pro Gly Cys Gly Lys Val Tyr Gly
            580                 585                 590

Lys Thr Ser His Leu Arg Ala His Leu Arg Trp His Ser Gly Glu Arg
            595                 600                 605

Pro Phe Val Cys Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr Arg Ser
    610                 615                 620

Asp Glu Leu Gln Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe
625                 630                 635                 640

Val Cys Pro Glu Cys Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala
                645                 650                 655

Lys His Ile Lys Thr His Gln Asn Lys Lys Gly Ile His Ser Ser Ser
            660                 665                 670

Thr Val Leu Ala Ser Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr
    675                 680                 685

Ala Gly Gly Thr Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val
    690                 695                 700
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Ser Gly Ile Gly Thr Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile
705   710   715   720

Leu Thr Asn Thr Glu Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn
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Glu Thr Met Glu
            740

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tgggctggcg gcgggaccag gaggaggagg aggaggagga ggagagcgcg ggctggcgct   180

tgcccgggcg cagtcggcgg ggaccgagtc gtacttcctg tgcgaaaggc ggcccgaccc   240

taaccgccac cccctccccc tgtctccctc tctgaacccg cccattgggg gtaggacact   300

cagccgtcac cgctcgctct gctggccgct acctgcagca agatagggcc gccatcgccg   360

ggcgacgacg aggaggaggc ggccgccgca gccggggccc ccgccgccgc cggagcgaca   420

ggtgatttgg cttctgcaca gttaggagga gcaccaaacc gatgggaggt tttgtcagcc   480

acacctacaa ctataaaaga tgaagctggt aatctagtcc agattccaag tgctgctact   540

tcaagtgggc agtatgttct tccccttcag aatttgcaga atcaacaaat attttccgtt   600

gcaccaggat cagattcatc aaatggtgca gtgtccagtg ttcaatatca agtgatacca   660

cagatccagt cagcagatgg tcagcaggtt caaattggtt tcacaggctc ttcagataat   720

gggggtataa atcaagaaag cagtcaaatt cagatcattc ctggctctaa tcaaacctta   780

cttgcctctg aacaccttc tgctaacatc cagaatctca taccacagac tggtcaagtc   840

caggttcagg gagttgcaat tggtggttca tcttttcctg gtcaaaccca agtagttgct   900

aatgtgcctc ttggtctgcc aggaaatatt acgtttgtac caatcaatag tgtcgatcta   960

gattctttgg gactctcggg cagttctcag aca atg act gca ggc att aat gcc   1014
                                    Met Thr Ala Gly Ile Asn Ala
                                     1   5

gac gga cat ttg ata aac aca gga caa gct atg gat agt tca gac aat   1062
Asp Gly His Leu Ile Asn Thr Gly Gln Ala Met Asp Ser Ser Asp Asn

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tca gaa agg act ggt gag cgg gtt tct cct gat att aat gaa act aat        1110
Ser Glu Arg Thr Gly Glu Arg Val Ser Pro Asp Ile Asn Glu Thr Asn
    25                  30                  35

act gat aca gat tta ttt gtg cca aca tcc tct tca tca cag ttg cct        1158
Thr Asp Thr Asp Leu Phe Val Pro Thr Ser Ser Ser Ser Gln Leu Pro
40                  45                  50                  55

gtt acg ata gat agt aca ggt ata tta caa caa aac aca aat agc ttg        1206
Val Thr Ile Asp Ser Thr Gly Ile Leu Gln Gln Asn Thr Asn Ser Leu
                60                  65                  70

act aca tct agt ggg cag gtt cat tct tca gat ctt cag gga aat tat        1254
Thr Thr Ser Ser Gly Gln Val His Ser Ser Asp Leu Gln Gly Asn Tyr
                75                  80                  85

atc cag tcg cct gtt tct gaa gag aca cag gca cag aat att cag gtt        1302
Ile Gln Ser Pro Val Ser Glu Glu Thr Gln Ala Gln Asn Ile Gln Val
                90                  95                  100

tct aca gca cag cct gtt gta cag cat cta caa ctt caa gag tct cag        1350
Ser Thr Ala Gln Pro Val Val Gln His Leu Gln Leu Gln Glu Ser Gln
    105                 110                 115

cag cca acc agt caa gcc caa att gtg caa ggt att aca cca cag aca        1398
Gln Pro Thr Ser Gln Ala Gln Ile Val Gln Gly Ile Thr Pro Gln Thr
120                 125                 130                 135

atc cat ggt gtg caa gcc agt ggt caa aat ata tca caa cag gct ttg        1446
Ile His Gly Val Gln Ala Ser Gly Gln Asn Ile Ser Gln Gln Ala Leu
                140                 145                 150

caa aat ctt cag ttg cag ctg aat cct gga acc ttt tta att cag gca        1494
Gln Asn Leu Gln Leu Gln Leu Asn Pro Gly Thr Phe Leu Ile Gln Ala
                155                 160                 165

cag aca gtg acc cct tct gga cag gta act tgg caa acg ttt caa gta        1542
Gln Thr Val Thr Pro Ser Gly Gln Val Thr Trp Gln Thr Phe Gln Val
        170                 175                 180

caa ggg gtc cag aac ttg cag aat ttg caa ata cag aat act gct gcc        1590
Gln Gly Val Gln Asn Leu Gln Asn Leu Gln Ile Gln Asn Thr Ala Ala
    185                 190                 195

caa caa ata act ttg acg cct gtt caa acc ctc aca ctt ggt caa gtt        1638
Gln Gln Ile Thr Leu Thr Pro Val Gln Thr Leu Thr Leu Gly Gln Val
200                 205                 210                 215

gcg gca ggt gga gcc ttc act tca act cca gtt agt cta agc act ggt        1686
Ala Ala Gly Gly Ala Phe Thr Ser Thr Pro Val Ser Leu Ser Thr Gly
                220                 225                 230

cag ttg cca aat cta caa aca gtt aca gtg aac tct ata gat tct gct        1734
Gln Leu Pro Asn Leu Gln Thr Val Thr Val Asn Ser Ile Asp Ser Ala
                235                 240                 245

ggt ata cag cta cat cca gga gag aat gct gac agt cct gca gat att        1782
Gly Ile Gln Leu His Pro Gly Glu Asn Ala Asp Ser Pro Ala Asp Ile
                250                 255                 260

agg atc aag gaa gaa gaa cct gat cct gaa gag tgg cag ctc agt ggt        1830
Arg Ile Lys Glu Glu Glu Pro Asp Pro Glu Glu Trp Gln Leu Ser Gly
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gat tct acc ttg aat acc aat gac cta aca cac tta aga gta cag gtg    1878
Asp Ser Thr Leu Asn Thr Asn Asp Leu Thr His Leu Arg Val Gln Val
280                 285                 290                 295

gta gat gaa gaa ggg gac caa caa cat caa gaa gga aaa aga ctt cgg    1926
Val Asp Glu Glu Gly Asp Gln Gln His Gln Glu Gly Lys Arg Leu Arg
                    300                 305                 310

agg gta gct tgc acc tgt ccc aac tgt aaa gaa ggt ggt gga aga ggt    1974
Arg Val Ala Cys Thr Cys Pro Asn Cys Lys Glu Gly Gly Gly Arg Gly
                315                 320                 325

acc aat ctt ggg aaa aag aag caa cac att tgt cat ata cca gga tgt    2022
Thr Asn Leu Gly Lys Lys Lys Gln His Ile Cys His Ile Pro Gly Cys
        330                 335                 340

ggt aaa gtc tat ggg aag acc tca cat ctg aga gct cat ctg cgt tgg    2070
Gly Lys Val Tyr Gly Lys Thr Ser His Leu Arg Ala His Leu Arg Trp
        345                 350                 355

cat tct gga gaa cgc cct ttt gtt tgt aac tgg atg tac tgt ggt aaa    2118
His Ser Gly Glu Arg Pro Phe Val Cys Asn Trp Met Tyr Cys Gly Lys
360                 365                 370                 375

aga ttt act cga agt gat gaa tta cag agg cac aga aga aca cat aca    2166
Arg Phe Thr Arg Ser Asp Glu Leu Gln Arg His Arg Arg Thr His Thr
                380                 385                 390

ggt gag aag aaa ttt gtt tgt cca gaa tgt tca aaa cgc ttt atg aga    2214
Gly Glu Lys Lys Phe Val Cys Pro Glu Cys Ser Lys Arg Phe Met Arg
                395                 400                 405

agt gac cac ctt gcc aaa cat att aaa aca cac cag aat aaa aaa ggt    2262
Ser Asp His Leu Ala Lys His Ile Lys Thr His Gln Asn Lys Lys Gly
        410                 415                 420

att cac tct agc agt aca gtg ctg gca tct gtg gaa gct gcg cga gat    2310
Ile His Ser Ser Ser Thr Val Leu Ala Ser Val Glu Ala Ala Arg Asp
        425                 430                 435

gat act ttg att act gca gga gga aca acg ctt atc ctt gca aag att    2358
Asp Thr Leu Ile Thr Ala Gly Gly Thr Thr Leu Ile Leu Ala Lys Ile
440                 445                 450                 455

caa caa ggt tct gtt tca ggg ata gga act gtt aat act tcc gcc acc    2406
Gln Gln Gly Ser Val Ser Gly Ile Gly Thr Val Asn Thr Ser Ala Thr
                460                 465                 470

agc aat caa gat atc ctt acc aac act gaa ata cct tta cag ctt gtc    2454
Ser Asn Gln Asp Ile Leu Thr Asn Thr Glu Ile Pro Leu Gln Leu Val
                475                 480                 485

aca gtt tct gga aat gag aca atg gag taaatattac acaaatactt          2501
Thr Val Ser Gly Asn Glu Thr Met Glu
        490                 495

attcattgtg gttattttta tacagtagtg agaagaatat tgttcctaag ttcttagata  2561

tctttttatt gatgtgcaaa aatttttgga ttgacagtaa cttggttata catgacactg  2621

aaatgcctta ctttgtatga tattccatag tatattaaaa atggtaaaat tgcatgggtt  2681
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ttgtaggtac ttttggaatc tagaagaaat gaaattttac caagttatat aaagagaaaa    2741

ttgaatttaa caatgcgaat ggtagtctaa ccaaatgcat caatcctgtg tggtttagtg    2801

taaaaatgag aacatgttgg tatttatcta ttgtaagata aaaaagctgg tgggtgaaag    2861

aaatcatgtt atgataaaaa attttgtaat tttcttgatg actggaattt ttattatgca    2921

taactgacaa atcaagtttc caagcaaatg ttacatagtg taggctttac ttagcttatc    2981

aatttgtcat tttgaagcta attattttaa ttaggttaac tatgtacaat attttaagca    3041

ttactcttgt aagattttga aaactacatt ttaacatgga actctaggga tagtcacctt    3101

ttaaatcctg ttgaaaagcc atgtttaaga tttaatttgc caaaataatg tcttgttaat    3161

attctttcaa taacgaagtt gggcaatata accaatgttt aaaaaagttt aaaatgtata    3221

agttgaggca tttgggtggt aagagaatgt tatagtgaat tatccctttt cttgactatt    3281

ggaggaccaa aaaataaggt gtattgcgtc ttagcagtga ttttatccaa tcttgtttcc    3341

aaaaaccatg gtctcccagg gccttaaaag ccatcatgta aattaccagt aaagtgtaac    3401

atatgcaaac ataacaaaat cacttccata gtgacgatac tccaaccata tggatattag    3461

tcatagaaga actagaggtt ttatgatatt tttttaagtc tttttttttt gtctaggtag    3521

tcagtctgca cttaaatatc aatcattttc cttttttgct tcttccctta aaatttatat    3581

gtatccagta catttaattg agaagcgtat gttttttatt atgctgtatt ttctttttat    3641

tttttaatta ttgtttatat tttcaattca aaaatgtaca aaataaagtt acattgctgg    3701

tctgtgtaag agctatacag ttttcctaaa tgtatacctg taactgcagc agttcaccta    3761

tttgcaaaaa tttggaattc tgttcatttg ttattcttaa gaccacctca aatttaaagg    3821

ctaccttatt gtacgtttaa agtgtattat aacagtgtgg tagttaataa aacactattt    3881

ttttttcttt tgaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa         3937
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Ala Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu Arg Val Ser
            20   25   30

Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr Asp Leu Phe Val Pro Thr
        35   40   45

Ser Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser Thr Gly Ile Leu
    50   55   60

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Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln Val His Ser
65                   70                75                   80


Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser Glu Glu Thr
                85                90                   95


Gln Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro Val Val Gln His
                100                105                110


Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala Gln Ile Val
            115                120                125


Gln Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln Ala Ser Gly Gln
    130                135                140


Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln Leu Asn Pro
145                150                155                160


Gly Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro Ser Gly Gln Val
                165                170                175


Thr Trp Gln Thr Phe Gln Val Gln Gly Val Gln Asn Leu Gln Asn Leu
            180                185                190


Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile Thr Leu Thr Pro Val Gln
    195                200                205


Thr Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala Phe Thr Ser Thr
    210                215                220


Pro Val Ser Leu Ser Thr Gly Gln Leu Pro Asn Leu Gln Thr Val Thr
225                230                235                240


Val Asn Ser Ile Asp Ser Ala Gly Ile Gln Leu His Pro Gly Glu Asn
                245                250                255


Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys Glu Glu Glu Pro Asp Pro
            260                265                270


Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr Leu Asn Thr Asn Asp Leu
            275                280                285


Thr His Leu Arg Val Gln Val Val Asp Glu Glu Gly Asp Gln Gln His
    290                295                300


Gln Glu Gly Lys Arg Leu Arg Arg Val Ala Cys Thr Cys Pro Asn Cys
303                310                315                320
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Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu Gly Lys Lys Lys Gln His
                325                 330                 335

Ile Cys His Ile Pro Gly Cys Gly Lys Val Tyr Gly Lys Thr Ser His
                340                 345                 350

Leu Arg Ala His Leu Arg Trp His Ser Gly Glu Arg Pro Phe Val Cys
                355                 360                 365

Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr Arg Ser Asp Glu Leu Gln
        370                 375                 380

Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe Val Cys Pro Glu
385                 390                 395                 400

Cys Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala Lys His Ile Lys
                405                 410                 415

Thr His Gln Asn Lys Lys Gly Ile His Ser Ser Ser Thr Val Leu Ala
                420                 425                 430

Ser Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala Gly Gly Thr
                435                 440                 445

Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val Ser Gly Ile Gly
        450                 455                 460

Thr Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu Thr Asn Thr
465                 470                 475                 480

Glu Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn Glu Thr Met Glu
                485                 490                 495


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<213>   Homo sapiens

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  Leu Pro Ala Arg Gly Ala Asn Ala Pro Thr Pro Pro Ala Pro Pro Arg
  1                 5                 10                  15

ctc gcc cgc ctg ccg cct ttt tgt gcg cgt gac act cag ccg tca ccg      97
Leu Ala Arg Leu Pro Pro Phe Cys Ala Arg Asp Thr Gln Pro Ser Pro
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ctc gct ctg ctg gcc gct acc tgc agc aag ata ggg ccg cca tcg ccg    145
Leu Ala Leu Leu Ala Ala Thr Cys Ser Lys Ile Gly Pro Pro Ser Pro
        35                  40                  45

ggc gac gac gag gag gag gcg gcc gcc gca gcc ggg gcc ccc gcc gcc    193
Gly Asp Asp Glu Glu Glu Ala Ala Ala Ala Ala Gly Ala Pro Ala Ala
        50                  55                  60

gcc gga gcg aca ggt gat ttg gct tct gca cag tta gga gga gca cca    241
Ala Gly Ala Thr Gly Asp Leu Ala Ser Ala Gln Leu Gly Gly Ala Pro
65                  70                  75                  80

aac cga tgg gag gtt ttg tca gcc aca cct aca act ata aaa gat gaa    289
Asn Arg Trp Glu Val Leu Ser Ala Thr Pro Thr Thr Ile Lys Asp Glu
                    85                  90                  95

gct ggt aat cta gtc cag att cca agt gct gct act tca agt ggg cag    337
Ala Gly Asn Leu Val Gln Ile Pro Ser Ala Ala Thr Ser Ser Gly Gln
                100                 105                 110

tat gtt ctt ccc ctt cag aat ttg cag aat caa caa ata ttt tcc gtt    385
Tyr Val Leu Pro Leu Gln Asn Leu Gln Asn Gln Gln Ile Phe Ser Val
            115                 120                 125

gca cca gga tca gat tca tca aat ggt gca gtg tcc agt gtt caa tat    433
Ala Pro Gly Ser Asp Ser Ser Asn Gly Ala Val Ser Ser Val Gln Tyr
        130                 135                 140

caa gtg ata cca cag atc cag tca gca gat ggt cag cag gtt caa att    481
Gln Val Ile Pro Gln Ile Gln Ser Ala Asp Gly Gln Gln Val Gln Ile
145                 150                 155                 160

ggt ttc aca ggc tct tca gat aat ggg ggt ata aat caa gaa agc agt    529
Gly Phe Thr Gly Ser Ser Asp Asn Gly Gly Ile Asn Gln Glu Ser Ser
                165                 170                 175

caa att cag atc att cct ggc tct aat caa acc tta ctt gcc tct gga    577
Gln Ile Gln Ile Ile Pro Gly Ser Asn Gln Thr Leu Leu Ala Ser Gly
                180                 185                 190

aca cct tct gct aac atc cag aat ctc ata cca cag act ggt caa gtc    625
Thr Pro Ser Ala Asn Ile Gln Asn Leu Ile Pro Gln Thr Gly Gln Val
        195                 200                 205

cag gtt cag gga gtt gca att ggt ggt tca tct ttt cct ggt caa acc    673
Gln Val Gln Gly Val Ala Ile Gly Gly Ser Ser Phe Pro Gly Gln Thr
        210                 215                 220

caa gta gtt gct aat gtg cct ctt ggt ctg cca gga aat att acg ttt    721
Gln Val Val Ala Asn Val Pro Leu Gly Leu Pro Gly Asn Ile Thr Phe
225                 230                 235                 240

gta cca atc aat agt gtc gat cta gat tct ttg gga ctc tcg ggc agt    769
Val Pro Ile Asn Ser Val Asp Leu Asp Ser Leu Gly Leu Ser Gly Ser
                245                 250                 255

tct cag aca atg act gca ggc att aat gcc gac gga cat ttg ata aac    817
Ser Gln Thr Met Thr Ala Gly Ile Asn Ala Asp Gly His Leu Ile Asn
                260                 265                 270

aca gga caa gct atg gat agt tca gac aat tca gaa agg act ggt gag    865
Thr Gly Gln Ala Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu
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cgg gtt tct cct gat att aat gaa act aat act gat aca gat tta ttt   913
Arg Val Ser Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr Asp Leu Phe
        290   295   300

gtg cca aca tcc tct tca tca cag ttg cct gtt acg ata gat agt aca   961
Val Pro Thr Ser Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser Thr
305   310   315   320

ggt ata tta caa caa aac aca aat agc ttg act aca tct agt ggg cag   1009
Gly Ile Leu Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln
                325   330   335

gtt cat tct tca gat ctt cag gga aat tat atc cag tcg cct gtt tct   1057
Val His Ser Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser
                340   345   350

gaa gag aca cag gca cag aat att cag gtt tct aca gca cag cct gtt   1105
Glu Glu Thr Gln Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro Val
        355   360   365

gta cag cat cta caa ctt caa gag tct cag cag cca acc agt caa gcc   1153
Val Gln His Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala
370   375   380

caa att gtg caa ggt att aca cca cag aca atc cat ggt gtg caa gcc   1201
Gln Ile Val Gln Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln Ala
385   390   395   400

agt ggt caa aat ata tca caa cag gct ttg caa aat ctt cag ttg cag   1249
Ser Gly Gln Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln
                405   410   415

ctg aat cct gga acc ttt tta att cag gca cag aca gtg acc cct tct   1297
Leu Asn Pro Gly Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro Ser
                420   425   430

gga cag gta act tgg caa acg ttt caa gta caa ggg gtc cag aac ttg   1345
Gly Gln Val Thr Trp Gln Thr Phe Gln Val Gln Gly Val Gln Asn Leu
        435   440   445

cag aat ttg caa ata cag aat act gct gcc caa caa ata act ttg acg   1393
Gln Asn Leu Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile Thr Leu Thr
450   455   460

cct gtt caa acc ctc aca ctt ggt caa gtt gcg gca ggt gga gcc ttc   1441
Pro Val Gln Thr Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala Phe
465   470   475   480

act tca act cca gtt agt cta agc act ggt cag ttg cca aat cta caa   1489
Thr Ser Thr Pro Val Ser Leu Ser Thr Gly Gln Leu Pro Asn Leu Gln
                485   490   495

aca gtt aca gtg aac tct ata gat tct gct ggt ata cag cta cat cca   1537
Thr Val Thr Val Asn Ser Ile Asp Ser Ala Gly Ile Gln Leu His Pro
                500   505   510

gga gag aat gct gac agt cct gca gat att agg atc aag gaa gaa gaa   1585
Gly Glu Asn Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys Glu Glu Glu
                515   520   525

cct gat cct gaa gag tgg cag ctc agt ggt gat tct acc ttg aat acc   1633
Pro Asp Pro Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr Leu Asn Thr

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aat gac cta aca cac tta aga gta cag gtg gta gat gaa gaa ggg gac      1681
Asn Asp Leu Thr His Leu Arg Val Gln Val Val Asp Glu Glu Gly Asp
545                    550                    555                    560

caa caa cat caa gaa gga aaa aga ctt cgg agg gta gct tgc acc tgt      1729
Gln Gln His Gln Glu Gly Lys Arg Leu Arg Arg Val Ala Cys Thr Cys
                       565                    570                    575

ccc aac tgt aaa gaa ggt ggt gga aga ggt acc aat ctt ggg aaa aag      1777
Pro Asn Cys Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu Gly Lys Lys
                   580                    585                    590

aag caa cac att tgt cat ata cca gga tgt ggt aaa gtc tat ggg aag      1825
Lys Gln His Ile Cys His Ile Pro Gly Cys Gly Lys Val Tyr Gly Lys
               595                    600                    605

acc tca cat ctg aga gct cat ctg cgt tgg cat tct gga gaa cgc cct      1873
Thr Ser His Leu Arg Ala His Leu Arg Trp His Ser Gly Glu Arg Pro
           610                    615                    620

ttt gtt tgt aac tgg atg tac tgt ggt aaa aga ttt act cga agt gat      1921
Phe Val Cys Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr Arg Ser Asp
625                    630                    635                    640

gaa tta cag agg cac aga aga aca cat aca ggt gag aag aaa ttt gtt      1969
Glu Leu Gln Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe Val
                   645                    650                    655

tgt cca gaa tgt tca aaa cgc ttt atg aga agt gac cac ctt gcc aaa      2017
Cys Pro Glu Cys Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala Lys
               660                    665                    670

cat att aaa aca cac cag aat aaa aaa ggt att cac tct agc agt aca      2065
His Ile Lys Thr His Gln Asn Lys Lys Gly Ile His Ser Ser Ser Thr
           675                    680                    685

gtg ctg gca tct gtg gaa gct gcg cga gat gat act ttg att act gca      2113
Val Leu Ala Ser Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala
       690                    695                    700

gga gga aca acg ctt atc ctt gca aag att caa caa ggt tct gtt tca      2161
Gly Gly Thr Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val Ser
705                    710                    715                    720

ggg ata gga act gtt aat act tcc gcc acc agc aat caa gat atc ctt      2209
Gly Ile Gly Thr Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu
                   725                    730                    735

acc aac act gaa ata cct tta cag ctt gtc aca gtt tct gga aat gag      2257
Thr Asn Thr Glu Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn Glu
               740                    745                    750

aca atg gag taaatattac acaaatactt attcattgtg gttatttta              2306
Thr Met Glu
           755

tacagtagtg agaagaatat tgttcctaag ttcttagata tcttttatt gatgtgcaaa    2366

aattttgga ttgacagtaa cttggttata catgacactg aaatgcctta ctttgtatga    2426

tattccatag tatattaaaa atggtaaaat tgcatgggtt ttgtaggtac ttttggaatc   2486
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tagaagaaat gaaattttac caagttatat aaagagaaaa ttgaatttaa caatgcgaat 2546

ggtagtctaa ccaaatgcat caatcctgtg tggtttagtg taaaaatgag aacatgttgg 2606

tatttatcta ttgtaagata aaaaagctgg tgggtgaaag aaatcatgtt atgataaaaa 2666

attttgtaat tttcttgatg actggaattt ttattatgca taactgacaa atcaagtttc 2726

caagcaaatg ttacatagtg taggctttac ttagcttatc aatttgtcat tttgaagcta 2786

attattttaa ttaggttaac tatgtacaat attttaagca ttactcttgt aagattttga 2846

aaactacatt ttaacatgga actctaggga tagtcacctt ttaaatcctg ttgaaaagcc 2906

atgtttaaga tttaatttgc caaaataatg tcttgttaat attctttcaa taacgaagtt 2966

gggcaatata accaatgttt aaaaaagttt aaaatgtata agttgaggca tttgggtggt 3026

aagagaatgt tatagtgaat tatcccatttt cttgactatt ggaggaccaa aaaataaggt 3086

gtattgcgtc ttagcagtga ttttatccaa tcttgtttcc aaaaaccatg gtctcccagg 3146

gccttaaaag ccatcatgta aattaccagt aaagtgtaac atatgcaaac ataacaaaat 3206

cacttccata gtgacgatac tccaaccata tggatattag tcatagaaga actagaggtt 3266

ttatgatatt tttttaagtc tttttttttt gtctaggtag tcagtctgca cttaaatatc 3326

aatcattttc cttttttgct tcttcccttaa aaatttatat gtatccagta catttaattg 3386

agaagcgtat gttttttatt atgctgtatt ttctttttat tttttaatta ttgtttatat 3446

tttcaattca aaaatgtaca aaataaagtt acattgctgg tctgtgtaag agctatacag 3506

ttttcctaaa tgtatacctg taactgcagc agttcaccta tttgcaaaaa tttggaattc 3566

tgttcatttg ttattcttaa gaccacctca aatttaaagg ctaccttatt gtacgtttaa 3626

agtgtattat aacagtgtgg tagttaataa aacactattt ttttttcttt tgaaaaaaaa 3686

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaa 3722

<210>   10
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<212>   PRT
<213>   Homo sapiens

<400>   10

Leu Pro Ala Arg Gly Ala Asn Ala Pro Thr Pro Pro Ala Pro Pro Arg
1   5   10   15

Leu Ala Arg Leu Pro Pro Phe Cys Ala Arg Asp Thr Gln Pro Ser Pro
            20   25   30

Leu Ala Leu Leu Ala Ala Thr Cys Ser Lys Ile Gly Pro Pro Ser Pro
        35   40   45

Gly Asp Asp Glu Glu Glu Ala Ala Ala Ala Ala Gly Ala Pro Ala Ala
    50   55   60

Ala Gly Ala Thr Gly Asp Leu Ala Ser Ala Gln Leu Gly Gly Ala Pro
65   70   75   80

Asn Arg Trp Glu Val Leu Ser Ala Thr Pro Thr Thr Ile Lys Asp Glu
                85   90   95

Ala Gly Asn Leu Val Gln Ile Pro Ser Ala Ala Thr Ser Ser Gly Gln
                100   105   110

Tyr Val Leu Pro Leu Gln Asn Leu Gln Asn Gln Gln Ile Phe Ser Val
                115   120   125

Ala Pro Gly Ser Asp Ser Ser Asn Gly Ala Val Ser Ser Val Gln Tyr
            130   135   140

Gln Val Ile Pro Gln Ile Gln Ser Ala Asp Gly Gln Gln Val Gln Ile
145   150   155   160

Gly Phe Thr Gly Ser Ser Asp Asn Gly Gly Ile Asn Gln Glu Ser Ser
                165   170   175

Gln Ile Gln Ile Ile Pro Gly Ser Asn Gln Thr Leu Leu Ala Ser Gly
                180   185   190

Thr Pro Ser Ala Asn Ile Gln Asn Leu Ile Pro Gln Thr Gly Gln Val
            195   200   205

Gln Val Gln Gly Val Ala Ile Gly Gly Ser Ser Phe Pro Gly Gln Thr
            210   215   220

Gln Val Val Ala Asn Val Pro Leu Gly Leu Pro Gly Asn Ile Thr Phe
225   230   235   240

Val Pro Ile Asn Ser Val Asp Leu Asp Ser Leu Gly Leu Ser Gly Ser
                245   250   255

Ser Gln Thr Met Thr Ala Gly Ile Asn Ala Asp Gly His Leu Ile Asn
                260   265   270

Thr Gly Gln Ala Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu
            275   280   285

Arg Val Ser Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr Asp Leu Phe
    290   295   300

Val Pro Thr Ser Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser Thr
305   310   315   320

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Gly Ile Leu Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln
          325                 330                 335


Val His Ser Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser
          340                 345                 350


Glu Glu Thr Gln Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro Val
          355                 360                 365


Val Gln His Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala
     370                 375                 380


Gln Ile Val Gln Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln Ala
385                 390                 395                 400


Ser Gly Gln Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln
               405                 410                 415


Leu Asn Pro Gly Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro Ser
          420                 425                 430


Gly Gln Val Thr Trp Gln Thr Phe Gln Val Gln Gly Val Gln Asn Leu
          435                 440                 445


Gln Asn Leu Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile Thr Leu Thr
     450                 455                 460


Pro Val Gln Thr Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala Phe
465                 470                 475                 480


Thr Ser Thr Pro Val Ser Leu Ser Thr Gly Gln Leu Pro Asn Leu Gln
               485                 490                 495


Thr Val Thr Val Asn Ser Ile Asp Ser Ala Gly Ile Gln Leu His Pro
          500                 505                 510


Gly Glu Asn Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys Glu Glu Glu
          515                 520                 525


Pro Asp Pro Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr Leu Asn Thr
     530                 535                 540


Asn Asp Leu Thr His Leu Arg Val Gln Val Val Asp Glu Glu Gly Asp
543                 550                 555                 560


Gln Gln His Gln Glu Gly Lys Arg Leu Arg Arg Val Ala Cys Thr Cys
               565                 570                 575
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Pro Asn Cys Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu Gly Lys Lys
            580                 585                 590

Lys Gln His Ile Cys His Ile Pro Gly Cys Gly Lys Val Tyr Gly Lys
            595                 600                 605

Thr Ser His Leu Arg Ala His Leu Arg Trp His Ser Gly Glu Arg Pro
            610                 615                 620

Phe Val Cys Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr Arg Ser Asp
625                 630                 635                 640

Glu Leu Gln Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe Val
                645                 650                 655

Cys Pro Glu Cys Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala Lys
            660                 665                 670

His Ile Lys Thr His Gln Asn Lys Lys Gly Ile His Ser Ser Ser Thr
            675                 680                 685

Val Leu Ala Ser Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala
            690                 695                 700

Gly Gly Thr Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val Ser
705                 710                 715                 720

Gly Ile Gly Thr Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu
                725                 730                 735

Thr Asn Thr Glu Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn Glu
            740                 745                 750

Thr Met Glu
        755


<210>  11
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<212>  DNA
<213>  Homo sapiens

<220>
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Asp Leu Arg Gln Phe Leu Met Cys Leu Ser Leu Cys Thr Ala Phe Ala
            5               10              15

ttg agc aaa ccc aca gaa aag aag gac cgt gta cat cat gag cct cag      155
Leu Ser Lys Pro Thr Glu Lys Lys Asp Arg Val His His Glu Pro Gln
        20              25              30

ctc agt gac aag gtt cac aat gat gct cag agt ttt gat tat gac cat      203
Leu Ser Asp Lys Val His Asn Asp Ala Gln Ser Phe Asp Tyr Asp His
        35              40              45

gat gcc ttc ttg ggt gct gaa gaa gca aag acc ttt gat cag ctg aca      251
Asp Ala Phe Leu Gly Ala Glu Glu Ala Lys Thr Phe Asp Gln Leu Thr
50              55              60              65

cca gaa gag agc aag gaa agg ctt gga atg att gta gat aaa ata gac      299
Pro Glu Glu Ser Lys Glu Arg Leu Gly Met Ile Val Asp Lys Ile Asp
                70              75              80

gcg gat aaa gat ggg ttt gtg acg gag ggg gag ctg aaa tcc tgg att      347
Ala Asp Lys Asp Gly Phe Val Thr Glu Gly Glu Leu Lys Ser Trp Ile
            85              90              95

aag cac gcc cag aag aaa tac ata tat gac aat gtt gaa aac caa tgg      395
Lys His Ala Gln Lys Lys Tyr Ile Tyr Asp Asn Val Glu Asn Gln Trp
        100             105             110

cag gag ttt gat atg aat caa gac ggc tta atc tcc tgg gat gag tac      443
Gln Glu Phe Asp Met Asn Gln Asp Gly Leu Ile Ser Trp Asp Glu Tyr
        115             120             125

aga aac gtg act tat ggc act tac ctg gat gat cca gat cct gat gat      491
Arg Asn Val Thr Tyr Gly Thr Tyr Leu Asp Asp Pro Asp Pro Asp Asp
130             135             140             145

gga ttt aac tat aaa cag atg atg gtt aga gat gag cgg agg ttt aaa      539
Gly Phe Asn Tyr Lys Gln Met Met Val Arg Asp Glu Arg Arg Phe Lys
                150             155             160

atg gca gac aag gat gga gac ctc att gcc acc aag gag gag ttc aca      587
Met Ala Asp Lys Asp Gly Asp Leu Ile Ala Thr Lys Glu Glu Phe Thr
            165             170             175

gct ttc ctg cac cct gag gag tat gac tac atg aaa gat ata gta gta      635
Ala Phe Leu His Pro Glu Glu Tyr Asp Tyr Met Lys Asp Ile Val Val
        180             185             190

cag gaa aca atg gaa gat ata gat aag aat gct gat ggt ttc att gat      683
Gln Glu Thr Met Glu Asp Ile Asp Lys Asn Ala Asp Gly Phe Ile Asp
        195             200             205

cta gaa gag tat att ggt gac atg tac agc cat gat ggg aat act gat      731
Leu Glu Glu Tyr Ile Gly Asp Met Tyr Ser His Asp Gly Asn Thr Asp
210             215             220             225

gag cca gaa tgg gta aag aca gag cga gag cag ttt gtt gag ttt cgg      779
Glu Pro Glu Trp Val Lys Thr Glu Arg Glu Gln Phe Val Glu Phe Arg
                230             235             240

gat aag aac cgt gat ggg aag atg gac aag gaa gag acc aaa gac tgg      827
Asp Lys Asn Arg Asp Gly Lys Met Asp Lys Glu Glu Thr Lys Asp Trp
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atc ctt ccc tca gac tat gat cat gca gag gca gaa gcc agg cac ctg      875
Ile Leu Pro Ser Asp Tyr Asp His Ala Glu Ala Glu Ala Arg His Leu
        260                 265                 270

gtc tat gaa tca gac caa aac aag gat ggc aag ctt acc aag gag gag      923
Val Tyr Glu Ser Asp Gln Asn Lys Asp Gly Lys Leu Thr Lys Glu Glu
    275                 280                 285

atc gtt gac aag tat gac tta ttt gtt ggc agc cag gcc aca gat ttt      971
Ile Val Asp Lys Tyr Asp Leu Phe Val Gly Ser Gln Ala Thr Asp Phe
290                 295                 300                 305

ggg gag gcc tta gta cgg cat gat gag ttc tgagctacgg aggaaccctc       1021
Gly Glu Ala Leu Val Arg His Asp Glu Phe
                310                 315

atttcctcaa aagtaattta tttttacagc ttctggtttc acatgaaatt gtttgcgcta   1081

ctgagactgt tactacaaac tttttaagac atgaaaggc gtaatgaaaa ccatcccgtc    1141

cccattcctc ctcctctctg agggactgga gggaagccgt gcttctgagg aacaactcta   1201

attagtacac ttgtgtttgt agatttacac tttgtattat gtattaacat ggcgtgttta   1261

tttttgtatt tttctctggt tgggagtatg atatgaagga tcaagatcct caactcacac   1321

atgtagacaa acattagctc tttactcttt ctcaacccct tttatgattt taataattct   1381

cacttaacta attttgtaag cctgagatca ataagaaatg ttcaggagag aggaaagaaa   1441

aaaaatatat gctccacaat ttatatttag agagagaaca cttagtcttg cctgtcaaaa   1501

agtccaacat ttcataggta gtaggggcca catattacat tcagttgcta taggtccagc   1561

aactgaacct gccattacct gggcaaggaa agatcccttt gctctaggaa agcttggccc   1621

aaattgattt tcttcttttt ccccctgtag gactgactgt tggctaattt tgtcaagcac   1681

agctgtggtg ggaagagtta gggccagtgt cttgaaaatc aatcaagtag tgaatgtgat   1741

ctctttgcag agctatagat agaaacagct ggaaaactaa aggaaaaata caagtgtttt   1801

cggggcatac attttttttc tgggtgtgca tctgttgaaa tgctcaagac ttcattattt   1861

gccttttgaa atcactgtaa atgcccccat ccggttcctc ttcttcccag gtgtgccaag   1921

gaattaatct tggtttcact acaattaaaa ttcactcctt tccaatcatg tcattgaaag   1981

tgcctttaac gaaagaaatg gtcactgaat gggaattctc ttaagaaacc ctgagattaa   2041

aaaaagacta tttggataac ttataggaaa gcctagaacc tcccagtaga gtggggattt   2101

ttttcttctt ccctttctct tttggacaat agttaaatta gcagtattag ttatgagttt   2161

ggttgcagtg ttcttatctt gtgggctgat ttccaaaaac cacatgctgc tgaatttacc   2221

aggatcctc atacctcaca atgcaaacca cttactacca ggccttttc tgtgtccact    2281

ggagagcttg agctcacact caaagatcag aggacctaca gagagggctc tttggtttga   2341

ggaccatggc ttacctttcc tgcctttgac ccatcacacc ccatttcctc ctctttccct   2401
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ctcccggctg ccaaaaaaaa aaaaaaagga aacgtttatc atgaatcaac agggtttcag    2461

tccttatcaa agagagatgt ggaaagagct aaagaaacca ccctttgttc ccaactccac    2521

tttacccata ttttatgcaa cacaaacact gtccttttgg gtccctttct tacagatgga    2581

cctcttgaga agaattatcg tattccacgt ttttagccct caggttacca agataaatat    2641

atgtatatat aacctttatt attgctatat ctttgtggat aatacattca ggtggtgctg    2701

ggtgatttat tataatctga acctaggtat atcctttggt cttccacagt catgttgagg    2761

tgggctccct ggtatggtaa aaagccaggt ataatgtaac ttcaccccag cctttgtact    2821

aagctcttga tagtggatat actcttttaa gtttagcccc aatatagggt aatggaaatt    2881

tcctgccctc tgggttcccc atttttacta ttaagaagac cagtgataat ttaataatgc    2941

caccaactct ggcttagtta agtgagagtg tgaactgtgt ggcaagagag cctcacacct    3001

cactaggtgc agagagccca ggccttatgt taaaatcatg cacttgaaaa gcaaacctta    3061

atctgcaaag acagcagcaa gcattatacg gtcatcttga atgatccctt tgaaattttt    3121

tttttgtttg tttgtttaaa tcaagcctga ggctggtgaa cagtagctac acacccatat    3181

tgtgtgttct gtgaatgcta gctctcttga atttggatat tggttatttt ttatagagtg    3241

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<212>    PRT
<213>    Homo sapiens

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Met Asp Leu Arg Gln Phe Leu Met Cys Leu Ser Leu Cys Thr Ala Phe
1                   5                   10                  15


Ala Leu Ser Lys Pro Thr Glu Lys Lys Asp Arg Val His His Glu Pro
            20                  25                  30


Gln Leu Ser Asp Lys Val His Asn Asp Ala Gln Ser Phe Asp Tyr Asp
        35                  40                  45


His Asp Ala Phe Leu Gly Ala Glu Glu Ala Lys Thr Phe Asp Gln Leu
    50                  55                  60


Thr Pro Glu Glu Ser Lys Glu Arg Leu Gly Met Ile Val Asp Lys Ile
65                  70                  75                  80


Asp Ala Asp Lys Asp Gly Phe Val Thr Glu Gly Glu Leu Lys Ser Trp
                85                  90                  95
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Ile Lys His Ala Gln Lys Lys Tyr Ile Tyr Asp Asn Val Glu Asn Gln
            100   105   110

Trp Gln Glu Phe Asp Met Asn Gln Asp Gly Leu Ile Ser Trp Asp Glu
            115   120   125

Tyr Arg Asn Val Thr Tyr Gly Thr Tyr Leu Asp Asp Pro Asp Pro Asp
    130   135   140

Asp Gly Phe Asn Tyr Lys Gln Met Met Val Arg Asp Glu Arg Arg Phe
145   150   155   160

Lys Met Ala Asp Lys Asp Gly Asp Leu Ile Ala Thr Lys Glu Glu Phe
                165   170   175

Thr Ala Phe Leu His Pro Glu Glu Tyr Asp Tyr Met Lys Asp Ile Val
            180   185   190

Val Gln Glu Thr Met Glu Asp Ile Asp Lys Asn Ala Asp Gly Phe Ile
            195   200   205

Asp Leu Glu Glu Tyr Ile Gly Asp Met Tyr Ser His Asp Gly Asn Thr
    210   215   220

Asp Glu Pro Glu Trp Val Lys Thr Glu Arg Glu Gln Phe Val Glu Phe
225   230   235   240

Arg Asp Lys Asn Arg Asp Gly Lys Met Asp Lys Glu Glu Thr Lys Asp
                245   250   255

Trp Ile Leu Pro Ser Asp Tyr Asp His Ala Glu Ala Glu Ala Arg His
            260   265   270

Leu Val Tyr Glu Ser Asp Gln Asn Lys Asp Gly Lys Leu Thr Lys Glu
            275   280   285

Glu Ile Val Asp Lys Tyr Asp Leu Phe Val Gly Ser Gln Ala Thr Asp
    290   295   300

Phe Gly Glu Ala Leu Val Arg His Asp Glu Phe
305   310   315

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<212> DNA
<213> Homo sapiens

<220>
<221> CDS
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acgcgcatga gggccccgtc catggaccgc gcggccgtgg cgagggtggg cgcggtagcg   120

agcgccagcg tgtgcgccct ggtggcgggg gtggtgctgg ctcagtacat attcaccttg   180

aagaggaaga cggggcggaa gaccaagatc atcgagatga agattggata accaagaa   238

atg act aat caa gag tct gcc gta cat gtg aaa atg atg cca gaa ttc   286
Met Thr Asn Gln Glu Ser Ala Val His Val Lys Met Met Pro Glu Phe
1   5   10   15

cag aaa agt tca gtt cga atc aag aac cct aca aga gta gaa gaa att   334
Gln Lys Ser Ser Val Arg Ile Lys Asn Pro Thr Arg Val Glu Glu Ile
            20   25   30

atc tgt ggt ctt atc aaa gga gga gct gcc aaa ctt cag ata ata acg   382
Ile Cys Gly Leu Ile Lys Gly Gly Ala Ala Lys Leu Gln Ile Ile Thr
        35   40   45

gac ttt gat atg aca ctc agt aga ttt tca tat aaa ggg aaa aga tgc   430
Asp Phe Asp Met Thr Leu Ser Arg Phe Ser Tyr Lys Gly Lys Arg Cys
    50   55   60

cca aca tgt cat aat atc att gac aac tgt aag ctg gtt aca gat gaa   478
Pro Thr Cys His Asn Ile Ile Asp Asn Cys Lys Leu Val Thr Asp Glu
65   70   75   80

tgt aga aaa aag tta ttg caa cta aag gaa aaa tac tac gct att gaa   526
Cys Arg Lys Lys Leu Leu Gln Leu Lys Glu Lys Tyr Tyr Ala Ile Glu
                85   90   95

gtt gat cct gtt ctt act gta gaa gag aag tac cct tat atg gtg gaa   574
Val Asp Pro Val Leu Thr Val Glu Glu Lys Tyr Pro Tyr Met Val Glu
            100   105   110

tgg tat act aaa tca cat ggt ttg ctt gtt cag caa gct tta cca aaa   622
Trp Tyr Thr Lys Ser His Gly Leu Leu Val Gln Gln Ala Leu Pro Lys
            115   120   125

gct aaa ctt aaa gaa att gtg gca gaa tct gac gtt atg ctc aaa gaa   670
Ala Lys Leu Lys Glu Ile Val Ala Glu Ser Asp Val Met Leu Lys Glu
    130   135   140

gga tat gag aat ttc ttt gat aag ctc caa caa cat agc atc ccc gtg   718
Gly Tyr Glu Asn Phe Phe Asp Lys Leu Gln Gln His Ser Ile Pro Val
145   150   155   160

ttc ata ttt tcg gct gga atc ggc gat gta cta gag gaa gtt att cgt   766
Phe Ile Phe Ser Ala Gly Ile Gly Asp Val Leu Glu Glu Val Ile Arg
                165   170   175

caa gct ggt gtt tat cat ccc aat gtc aaa gtt gtg tcc aat ttt atg   814
Gln Ala Gly Val Tyr His Pro Asn Val Lys Val Val Ser Asn Phe Met
            180   185   190

gat ttt gat gaa act ggg gtg ctc aaa gga ttt aaa gga gaa cta att   862
Asp Phe Asp Glu Thr Gly Val Leu Lys Gly Phe Lys Gly Glu Leu Ile
            195   200   205

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cat gta ttt aac aaa cat gat ggt gcc ttg agg aat aca gaa tat ttc        910
His Val Phe Asn Lys His Asp Gly Ala Leu Arg Asn Thr Glu Tyr Phe
    210             215                 220

aat caa cta aaa gac aat agt aac ata att ctt ctg gga gac tcc caa        958
Asn Gln Leu Lys Asp Asn Ser Asn Ile Ile Leu Leu Gly Asp Ser Gln
225             230                 235                 240

gga gac tta aga atg gca gat gga gtg gcc aat gtt gag cac att ctg       1006
Gly Asp Leu Arg Met Ala Asp Gly Val Ala Asn Val Glu His Ile Leu
                245                 250                 255

aaa att gga tat cta aat gat aga gtg gat gag ctt tta gaa aag tac       1054
Lys Ile Gly Tyr Leu Asn Asp Arg Val Asp Glu Leu Leu Glu Lys Tyr
                260                 265                 270

atg gac tct tat gat att gtt tta gta caa gat gaa tca tta gaa gta       1102
Met Asp Ser Tyr Asp Ile Val Leu Val Gln Asp Glu Ser Leu Glu Val
            275                 280                 285

gcc aac tct att tta cag aag att cta taaacaagca ttctccaaga             1149
Ala Asn Ser Ile Leu Gln Lys Ile Leu
    290                 295

agacctctct cctgtgggtg caattgaact gttcatccgt tcatcttgct gagagactta    1209

tttataatat atccttactc tcgaagtgtt ccctttgtat aactgaagta ttttcagata    1269

tggtgaatgc attgactgga agctcctttt ctccacctct ctcaacacac tcctcaccgt    1329

atcttttaac ccatttaaaa aaaaaaaaaa gctaaaatta gaaaataac tccctacttt     1389

tccaaagtga attttgtagt ttaatgttat catgcagctt ttgaggagtc ttttacactg    1449

ggaaagtttg tagaaatttt aaaataagtt ttatgaaatg gtgaataat atgcatgatt     1509

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ttagtgttgg aaaaacctgg tggtgtttac aatgttgcta atcattacaa aacattctat    1689

attgaagcac tgataataaa tatgaaatgc                                      1719


<210>  14
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<212>  PRT
<213>  Homo sapiens

<400>  14

Met Thr Asn Gln Glu Ser Ala Val His Val Lys Met Met Pro Glu Phe
1               5                   10                  15


Gln Lys Ser Ser Val Arg Ile Lys Asn Pro Thr Arg Val Glu Glu Ile
            20                  25                  30


Ile Cys Gly Leu Ile Lys Gly Gly Ala Ala Lys Leu Gln Ile Ile Thr
            35                  40                  45
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Asp Phe Asp Met Thr Leu Ser Arg Phe Ser Tyr Lys Gly Lys Arg Cys
    50                  55                  60

Pro Thr Cys His Asn Ile Ile Asp Asn Cys Lys Leu Val Thr Asp Glu
65                  70                  75                  80

Cys Arg Lys Lys Leu Leu Gln Leu Lys Glu Lys Tyr Tyr Ala Ile Glu
                85                  90                  95

Val Asp Pro Val Leu Thr Val Glu Glu Lys Tyr Pro Tyr Met Val Glu
            100                 105                 110

Trp Tyr Thr Lys Ser His Gly Leu Leu Val Gln Gln Ala Leu Pro Lys
        115                 120                 125

Ala Lys Leu Lys Glu Ile Val Ala Glu Ser Asp Val Met Leu Lys Glu
    130                 135                 140

Gly Tyr Glu Asn Phe Phe Asp Lys Leu Gln Gln His Ser Ile Pro Val
145                 150                 155                 160

Phe Ile Phe Ser Ala Gly Ile Gly Asp Val Leu Glu Glu Val Ile Arg
            165                 170                 175

Gln Ala Gly Val Tyr His Pro Asn Val Lys Val Val Ser Asn Phe Met
            180                 185                 190

Asp Phe Asp Glu Thr Gly Val Leu Lys Gly Phe Lys Gly Glu Leu Ile
        195                 200                 205

His Val Phe Asn Lys His Asp Gly Ala Leu Arg Asn Thr Glu Tyr Phe
    210                 215                 220

Asn Gln Leu Lys Asp Asn Ser Asn Ile Ile Leu Leu Gly Asp Ser Gln
225                 230                 235                 240

Gly Asp Leu Arg Met Ala Asp Gly Val Ala Asn Val Glu His Ile Leu
            245                 250                 255

Lys Ile Gly Tyr Leu Asn Asp Arg Val Asp Glu Leu Leu Glu Lys Tyr
            260                 265                 270

Met Asp Ser Tyr Asp Ile Val Leu Val Gln Asp Glu Ser Leu Glu Val
        275                 280                 285

Ala Asn Ser Ile Leu Gln Lys Ile Leu
    290                 295
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                                                               Met
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gcg ctg ggc ttg gag cag gcg gag gag cag cgg ttg tac cag cag acg   106
Ala Leu Gly Leu Glu Gln Ala Glu Glu Gln Arg Leu Tyr Gln Gln Thr
             5   10   15

ctc ctg caa gac ggg ctc aaa gac atg ctg gac cat ggc aag ttc ctc   154
Leu Leu Gln Asp Gly Leu Lys Asp Met Leu Asp His Gly Lys Phe Leu
            20   25   30

gac tgt gtg gtg cgg gcg ggc gag cgc gag ttc ccg tgc cat cgc ctg   202
Asp Cys Val Val Arg Ala Gly Glu Arg Glu Phe Pro Cys His Arg Leu
        35   40   45

gtg ctg gcc gcc tgc agc ccc tac ttc cgg gcg cgc ttt cta gcc gag   250
Val Leu Ala Ala Cys Ser Pro Tyr Phe Arg Ala Arg Phe Leu Ala Glu
50   55   60   65

ccg gag cgc gcg ggc gag ctg cac ctg gag gag gtg tcc ccg gac gtg   298
Pro Glu Arg Ala Gly Glu Leu His Leu Glu Glu Val Ser Pro Asp Val
                70   75   80

gtg gcc cag gtg ctg cac tac ctg tac aca tca gag atc gcg ctg gat   346
Val Ala Gln Val Leu His Tyr Leu Tyr Thr Ser Glu Ile Ala Leu Asp
                85   90   95

gag gcg agc gtg cag gat ttg ttc gcc gcg gca cac cgc ttc cag atc   394
Glu Ala Ser Val Gln Asp Leu Phe Ala Ala Ala His Arg Phe Gln Ile
            100   105   110

cct tcc atc ttc acc atc tgc gtg tcc ttc ctg cag aag cgc ctg tgc   442
Pro Ser Ile Phe Thr Ile Cys Val Ser Phe Leu Gln Lys Arg Leu Cys
        115   120   125

ctc tcc aac tgc ttg gcc gtc ttc cgt ctc ggc ctc ctg ctc gac tgc   490
Leu Ser Asn Cys Leu Ala Val Phe Arg Leu Gly Leu Leu Leu Asp Cys
130   135   140   145

gcg cgt ctc gcc gtg gct gcc cgc gac ttc atc tgc gct cac ttc acg   538
Ala Arg Leu Ala Val Ala Ala Arg Asp Phe Ile Cys Ala His Phe Thr
                150   155   160

ctg gtg gcg cgc gac gct gac ttc ctc gga ctc tcg gcc gac gag ctc   586
Leu Val Ala Arg Asp Ala Asp Phe Leu Gly Leu Ser Ala Asp Glu Leu
                165   170   175

atc gcc atc atc tcc agc gac ggc ctt aac gtg gag aag gag gag gca   634
Ile Ala Ile Ile Ser Ser Asp Gly Leu Asn Val Glu Lys Glu Glu Ala
            180   185   190

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gtg ttc gag gcg gtg atg cgg tgg gcg ggt agc ggc gac gcc gag gcg        682
Val Phe Glu Ala Val Met Arg Trp Ala Gly Ser Gly Asp Ala Glu Ala
    195                 200                 205

cag gct gag cgc cag cgc gcg ctg ccc acc gtc ttc gag agc gtg cgc        730
Gln Ala Glu Arg Gln Arg Ala Leu Pro Thr Val Phe Glu Ser Val Arg
210                 215                 220                 225

tgc cgc ttg ctg ccg cgc gcc ttt ctg gaa agc cgc gtg gag cgc cac        778
Cys Arg Leu Leu Pro Arg Ala Phe Leu Glu Ser Arg Val Glu Arg His
                230                 235                 240

cct ctc gtg cgt gcc cag ccc gag ttg ctg cgc aag gtg cag atg gtg        826
Pro Leu Val Arg Ala Gln Pro Glu Leu Leu Arg Lys Val Gln Met Val
                245                 250                 255

aag gat gca cac gag ggc cgc atc acc acg ctg cgg aag aaa aag aag        874
Lys Asp Ala His Glu Gly Arg Ile Thr Thr Leu Arg Lys Lys Lys Lys
            260                 265                 270

ggg aag gat gga gcc ggg gcc aag gag gct gat aag ggc aca agc aaa        922
Gly Lys Asp Gly Ala Gly Ala Lys Glu Ala Asp Lys Gly Thr Ser Lys
    275                 280                 285

gcc aaa gca gag gag gat gag gag gcc gaa cgt atc ctt cct ggg atc        970
Ala Lys Ala Glu Glu Asp Glu Glu Ala Glu Arg Ile Leu Pro Gly Ile
290                 295                 300                 305

ctc aat gac acc ctg cgc ttc ggc atg ttc ctg cag gat ctc atc ttc       1018
Leu Asn Asp Thr Leu Arg Phe Gly Met Phe Leu Gln Asp Leu Ile Phe
                310                 315                 320

atg atc agt gag gag ggc gct gtg gcc tac gat cca gca gcc aac gag       1066
Met Ile Ser Glu Glu Gly Ala Val Ala Tyr Asp Pro Ala Ala Asn Glu
                325                 330                 335

tgc tac tgt gct tcc ctc tcc agc cag gtc ccc aag aac cac gtc agc       1114
Cys Tyr Cys Ala Ser Leu Ser Ser Gln Val Pro Lys Asn His Val Ser
            340                 345                 350

ctg gtt acc aag gag aac cag gtc ttc gtg gct gga ggc ctc ttc tac       1162
Leu Val Thr Lys Glu Asn Gln Val Phe Val Ala Gly Gly Leu Phe Tyr
    355                 360                 365

aac gaa gac aac aaa gag gac ccc atg agc gca tac ttc ctg cag ttt       1210
Asn Glu Asp Asn Lys Glu Asp Pro Met Ser Ala Tyr Phe Leu Gln Phe
370                 375                 380                 385

gac cat ctg gac tca gag tgg ctg ggg atg cca ccg ctg ccc tcg ccc       1258
Asp His Leu Asp Ser Glu Trp Leu Gly Met Pro Pro Leu Pro Ser Pro
                390                 395                 400

cgc tgc ctc ttt ggc ctg gga gaa gct ctc aac tcc atc tac gtg gtc       1306
Arg Cys Leu Phe Gly Leu Gly Glu Ala Leu Asn Ser Ile Tyr Val Val
                405                 410                 415

ggt ggc aga gag atc aag gac ggc gag cgc tgc ctg gac tcg gtc atg       1354
Gly Gly Arg Glu Ile Lys Asp Gly Glu Arg Cys Leu Asp Ser Val Met
            420                 425                 430

tgc tac gac agg ctg tca ttc aaa tgg ggt gaa tcg gac ccg ctg cct       1402
Cys Tyr Asp Arg Leu Ser Phe Lys Trp Gly Glu Ser Asp Pro Leu Pro
    435                 440                 445
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tac gtg gtg tat ggc cac aca gtg ctc tcc cac atg gac ctt gtc tac      1450
Lys Val Val Tyr Gly His Thr Val Leu Ser His Met Asp Leu Val Tyr
450             455             460             465

gta att ggc ggc aaa ggc agt gac agg aag tgc ctg aac aag atg tgc      1498
Val Ile Gly Gly Lys Gly Ser Asp Arg Lys Cys Leu Asn Lys Met Cys
                470             475             480

gtc tat gac ccc aag aag ttt gag tgg aag gag ctg gca ccc atg cag      1546
Val Tyr Asp Pro Lys Lys Phe Glu Trp Lys Glu Leu Ala Pro Met Gln
            485             490             495

acc gcc cgc tca ctc ttt ggg gcc act gtc cat gat ggc cgc att atc      1594
Thr Ala Arg Ser Leu Phe Gly Ala Thr Val His Asp Gly Arg Ile Ile
        500             505             510

gtg gca gct ggg gtc acc gac aca ggg ctg acc agt tct gcc gaa gtg      1642
Val Ala Ala Gly Val Thr Asp Thr Gly Leu Thr Ser Ser Ala Glu Val
        515             520             525

tac agc atc aca gac aac aag tgg gca ccc ttc gag gcc ttc cca cag      1690
Tyr Ser Ile Thr Asp Asn Lys Trp Ala Pro Phe Glu Ala Phe Pro Gln
530             535             540             545

gag cgt agc tca ctc agc ctg gtc agc ctg gtg ggt acc ctc tat gcc      1738
Glu Arg Ser Ser Leu Ser Leu Val Ser Leu Val Gly Thr Leu Tyr Ala
                550             555             560

att ggt ggc ttt gcc aca ctg gag acg gag tct gga gag ctg gtt ccc      1786
Ile Gly Gly Phe Ala Thr Leu Glu Thr Glu Ser Gly Glu Leu Val Pro
                565             570             575

aca gag ctc aat gac atc tgg agg tat aac gag gag gag aag aaa tgg      1834
Thr Glu Leu Asn Asp Ile Trp Arg Tyr Asn Glu Glu Glu Lys Lys Trp
        580             585             590

gag ggt gtc ctg cgg gag atc gcc tat gca gca ggt gcc acc ttc cta      1882
Glu Gly Val Leu Arg Glu Ile Ala Tyr Ala Ala Gly Ala Thr Phe Leu
    595             600             605

cca gtg cgg ctc aat gtg ctg cgc ctg act aag atg tgaccagctc          1928
Pro Val Arg Leu Asn Val Leu Arg Leu Thr Lys Met
610             615             620

aggcagactg aactaagcac ccctcccatc ctgcgaccct cactggcctg gccttgtggg   1988

ggctccagaa aagaggctag gagaggccag agtctacctg gatccagtta tggtgcctca   2048

ggggctgcgt cagccaagga aagggaagtg ctgcttagtc ctggactttt gggccagggt   2108

gagaaactag aggcttctcc agtgttgcca tatcccccta ggttgtcttg atccatgaac   2168

cagaaccaca gggcggtatc ccaggccgtg tgctggccct gccccagcct agctgagtgt   2228

gctggcaaag ttccccacag gactcagcct tctcgtctgt ccgatgggag catccccatc   2288

aagtgcagtg tacagtgcag atatgtctcc ttctttagga agaataaagt gccttctgag   2348

caagcaaaaa aaaaaaaaaa aaa                                            2371


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Met Ala Leu Gly Leu Glu Gln Ala Glu Glu Gln Arg Leu Tyr Gln Gln
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Thr Leu Leu Gln Asp Gly Leu Lys Asp Met Leu Asp His Gly Lys Phe
            20   25   30

Leu Asp Cys Val Val Arg Ala Gly Glu Arg Glu Phe Pro Cys His Arg
        35   40   45

Leu Val Leu Ala Ala Cys Ser Pro Tyr Phe Arg Ala Arg Phe Leu Ala
    50   55   60

Glu Pro Glu Arg Ala Gly Glu Leu His Leu Glu Glu Val Ser Pro Asp
65   70   75   80

Val Val Ala Gln Val Leu His Tyr Leu Tyr Thr Ser Glu Ile Ala Leu
            85   90   95

Asp Glu Ala Ser Val Gln Asp Leu Phe Ala Ala Ala His Arg Phe Gln
            100   105   110

Ile Pro Ser Ile Phe Thr Ile Cys Val Ser Phe Leu Gln Lys Arg Leu
        115   120   125

Cys Leu Ser Asn Cys Leu Ala Val Phe Arg Leu Gly Leu Leu Leu Asp
    130   135   140

Cys Ala Arg Leu Ala Val Ala Ala Arg Asp Phe Ile Cys Ala His Phe
145   150   155   160

Thr Leu Val Ala Arg Asp Ala Asp Phe Leu Gly Leu Ser Ala Asp Glu
            165   170   175

Leu Ile Ala Ile Ile Ser Ser Asp Gly Leu Asn Val Glu Lys Glu Glu
        180   185   190

Ala Val Phe Glu Ala Val Met Arg Trp Ala Gly Ser Gly Asp Ala Glu
        195   200   205

Ala Gln Ala Glu Arg Gln Arg Ala Leu Pro Thr Val Phe Glu Ser Val
    210   215   220

Arg Cys Arg Leu Leu Pro Arg Ala Phe Leu Glu Ser Arg Val Glu Arg
225   230   235   240

His Pro Leu Val Arg Ala Gln Pro Glu Leu Leu Arg Lys Val Gln Met
            245   250   255

Val Lys Asp Ala His Glu Gly Arg Ile Thr Thr Leu Arg Lys Lys Lys
            260   265   270

Lys Gly Lys Asp Gly Ala Gly Ala Lys Glu Ala Asp Lys Gly Thr Ser
    275   280   285

Lys Ala Lys Ala Glu Glu Asp Glu Glu Ala Glu Arg Ile Leu Pro Gly
    290   295   300

Ile Leu Asn Asp Thr Leu Arg Phe Gly Met Phe Leu Gln Asp Leu Ile
305   310   315   320

Phe Met Ile Ser Glu Glu Gly Ala Val Ala Tyr Asp Pro Ala Ala Asn
            325   330   335

Glu Cys Tyr Cys Ala Ser Leu Ser Ser Gln Val Pro Lys Asn His Val
            340   345   350

Ser Leu Val Thr Lys Glu Asn Gln Val Phe Val Ala Gly Gly Leu Phe
    355   360   365

Tyr Asn Glu Asp Asn Lys Glu Asp Pro Met Ser Ala Tyr Phe Leu Gln
    370   375   380

Phe Asp His Leu Asp Ser Glu Trp Leu Gly Met Pro Pro Leu Pro Ser
385   390   395   400

Pro Arg Cys Leu Phe Gly Leu Gly Glu Ala Leu Asn Ser Ile Tyr Val
            405   410   415

Val Gly Gly Arg Glu Ile Lys Asp Gly Glu Arg Cys Leu Asp Ser Val
            420   425   430

Met Cys Tyr Asp Arg Leu Ser Phe Lys Trp Gly Glu Ser Asp Pro Leu
            435   440   445

Pro Tyr Val Val Tyr Gly His Thr Val Leu Ser His Met Asp Leu Val
    450   455   460

Tyr Val Ile Gly Gly Lys Gly Ser Asp Arg Lys Cys Leu Asn Lys Met
465   470   475   480

Cys Val Tyr Asp Pro Lys Lys Phe Glu Trp Lys Glu Leu Ala Pro Met
            485   490   495

Gln Thr Ala Arg Ser Leu Phe Gly Ala Thr Val His Asp Gly Arg Ile
        500   505   510

Ile Val Ala Ala Gly Val Thr Asp Thr Gly Leu Thr Ser Ser Ala Glu
        515   520   525

Val Tyr Ser Ile Thr Asp Asn Lys Trp Ala Pro Phe Glu Ala Phe Pro
    530   535   540

Gln Glu Arg Ser Ser Leu Ser Leu Val Ser Leu Val Gly Thr Leu Tyr
545   550   555   560

Ala Ile Gly Gly Phe Ala Thr Leu Glu Thr Glu Ser Gly Glu Leu Val
                565   570   575

Pro Thr Glu Leu Asn Asp Ile Trp Arg Tyr Asn Glu Glu Glu Lys Lys
        580   585   590

Trp Glu Gly Val Leu Arg Glu Ile Ala Tyr Ala Ala Gly Ala Thr Phe
        595   600   605

Leu Pro Val Arg Leu Asn Val Leu Arg Leu Thr Lys Met
    610   615   620

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acagccgccg ccgacgcctc ctctccggga gccgccttcc ccccggcccg agggcggtgg   180

cgtggggcgc cgggtgcagg cgttctgggg cgccgggggcc gcagctcgct ggccatcccg   240

cggctgcgcc ccgcgcctcg ccc atg gct gag ggc cgg cgg cgg gag gac gag   293
                          Met Ala Glu Gly Arg Arg Arg Glu Asp Glu
                           1   5   10

gag gaa gag cta cgc gag cgc cgc gaa ctt ggt ggc cag cgc cgc gcc   341
Glu Glu Glu Leu Arg Glu Arg Arg Glu Leu Gly Gly Gln Arg Arg Ala
                15   20   25

cgg ggc cgt gcg ctc tcg ggc cac tcg gcc gca gat cgc aac gaa cga   389
Arg Gly Arg Ala Leu Ser Gly His Ser Ala Ala Asp Arg Asn Glu Arg
            30   35   40

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aat aaa cca gaa cat cgt tct tca agc caa gga ccc ttg tca tcc att      437
Asn Lys Pro Glu His Arg Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile
        45                  50                  55

aga gcg gta atc aag aga tct tct cgg act tct att cag agt gaa ctt      485
Arg Ala Val Ile Lys Arg Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu
        60                  65                  70

cat cga gat aga agg cgc cca gag atc acc att gtg gca gct gag cca      533
His Arg Asp Arg Arg Arg Pro Glu Ile Thr Ile Val Ala Ala Glu Pro
75                      80                  85                  90

ctg agg cca gcc tcg tgg ttt cca gga acc cca ccc cca gga ctg gga      581
Leu Arg Pro Ala Ser Trp Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly
                95                  100                 105

ttt cct aca tca tct gca gca ggc tct tgg agg cct aat gag ctg gtt      629
Phe Pro Thr Ser Ser Ala Ala Gly Ser Trp Arg Pro Asn Glu Leu Val
            110                 115                 120

cct gct gag ctc cca cca tct tat gaa caa gtt ata aaa gaa atc aac      677
Pro Ala Glu Leu Pro Pro Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn
        125                 130                 135

caa gtt caa gtt aat act aca aat aat aat aat gct gct gct act cca      725
Gln Val Gln Val Asn Thr Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro
        140                 145                 150

agg cac act att act tct gca act cag act gac ttt tca gaa gaa ata      773
Arg His Thr Ile Thr Ser Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile
155                 160                 165                 170

gac aac gat ctg cct caa aca cta cag gca cct ctc aag cct ctt cag      821
Asp Asn Asp Leu Pro Gln Thr Leu Gln Ala Pro Leu Lys Pro Leu Gln
                175                 180                 185

cct ttc tca gca gtc tcg tct ggc aat ctt cca aca aat gtg gca cct      869
Pro Phe Ser Ala Val Ser Ser Gly Asn Leu Pro Thr Asn Val Ala Pro
            190                 195                 200

tta atc gtc ttt gat att tct gaa gaa ccg aat tgt cca gaa aac ccc      917
Leu Ile Val Phe Asp Ile Ser Glu Glu Pro Asn Cys Pro Glu Asn Pro
        205                 210                 215

agt gct aca aga tgt cca gtg cca aaa cca aga tca aaa agc aac ctc      965
Ser Ala Thr Arg Cys Pro Val Pro Lys Pro Arg Ser Lys Ser Asn Leu
220                 225                 230

aga cca ata ccc aga gat tct cac att aaa gag caa agt caa cag aaa      1013
Arg Pro Ile Pro Arg Asp Ser His Ile Lys Glu Gln Ser Gln Gln Lys
235                 240                 245                 250

atc agc cca gca gcc gta gga gag gag tca tcc cca ggc cgg ccc cag      1061
Ile Ser Pro Ala Ala Val Gly Glu Glu Ser Ser Pro Gly Arg Pro Gln
                255                 260                 265

tct ctg ctg gac aac gct agc acc tca gac agt cag gca gtg atg aac      1109
Ser Leu Leu Asp Asn Ala Ser Thr Ser Asp Ser Gln Ala Val Met Asn
            270                 275                 280

att atg aac aca gaa caa agc caa aat agt att gtt tcc aga att aaa      1157
Ile Met Asn Thr Glu Gln Ser Gln Asn Ser Ile Val Ser Arg Ile Lys
        285                 290                 295
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gtg ttt gag ggt cag aca aac ata gaa acc tca gga ctg ccc aag aaa      1205
Val Phe Glu Gly Gln Thr Asn Ile Glu Thr Ser Gly Leu Pro Lys Lys
    300                     305             310

cca gaa att act cca cgt tca ctt cct cca aag cct act gtt tcc tca      1253
Pro Glu Ile Thr Pro Arg Ser Leu Pro Pro Lys Pro Thr Val Ser Ser
315             320                 325                 330

ggg aaa cct tct gta gct ccc aaa cca gct gct aac aga gct tct gga      1301
Gly Lys Pro Ser Val Ala Pro Lys Pro Ala Ala Asn Arg Ala Ser Gly
                335             340             345

gag tgg gac tct ggg act gag aac aga ctc aag gtg acc tcc aag gaa      1349
Glu Trp Asp Ser Gly Thr Glu Asn Arg Leu Lys Val Thr Ser Lys Glu
                350             355             360

gga ctc acc cca tac cct ccc ctg caa gaa gcg gga agc atc cca gta      1397
Gly Leu Thr Pro Tyr Pro Pro Leu Gln Glu Ala Gly Ser Ile Pro Val
            365                 370             375

acc aaa cct gaa ttg cca aag aaa cca aac cct ggc ctt ata cga agt      1445
Thr Lys Pro Glu Leu Pro Lys Lys Pro Asn Pro Gly Leu Ile Arg Ser
    380             385             390

gtt aat cct gag att ccg gga aga ggg ccc ctg gct gag agc tct gat      1493
Val Asn Pro Glu Ile Pro Gly Arg Gly Pro Leu Ala Glu Ser Ser Asp
395             400             405             410

agt ggg aag aaa gtg cca act cct gcc ccg cgg cct ttg ctg ctg aag      1541
Ser Gly Lys Lys Val Pro Thr Pro Ala Pro Arg Pro Leu Leu Leu Lys
                415             420             425

aaa tct gtt tcc tca gaa aac ccc acc tac cct tca gct cca ctg aaa      1589
Lys Ser Val Ser Ser Glu Asn Pro Thr Tyr Pro Ser Ala Pro Leu Lys
            430             435             440

cct gtc act gtt cct ccc cga ctc gca ggg gca tca caa gcc aaa gca      1637
Pro Val Thr Val Pro Pro Arg Leu Ala Gly Ala Ser Gln Ala Lys Ala
        445             450             455

tac aag tca ctg gga gaa ggg ccc cca gcc aac ccc cca gtt cca gtt      1685
Tyr Lys Ser Leu Gly Glu Gly Pro Pro Ala Asn Pro Pro Val Pro Val
    460             465             470

ctg cag agc aag ccc ttg gtg gac atc gat ctc atc agc ttt gat gat      1733
Leu Gln Ser Lys Pro Leu Val Asp Ile Asp Leu Ile Ser Phe Asp Asp
475             480             485             490

gat gtt ttg ccc acc cca tcg ggg aac ctg gct gaa gaa tct gtt ggt      1781
Asp Val Leu Pro Thr Pro Ser Gly Asn Leu Ala Glu Glu Ser Val Gly
            495             500             505

tca gag atg gtt cta gat ccc ttt cag ctc cct gca aaa aca gaa cca      1829
Ser Glu Met Val Leu Asp Pro Phe Gln Leu Pro Ala Lys Thr Glu Pro
            510             515             520

ata aaa gaa cga gca gtt caa cca gca ccc acc agg aag ccc act gta      1877
Ile Lys Glu Arg Ala Val Gln Pro Ala Pro Thr Arg Lys Pro Thr Val
    525             530             535

att cga att cca gcc aaa cca gga aaa tgt tta cat gag gat cca caa      1925
Ile Arg Ile Pro Ala Lys Pro Gly Lys Cys Leu His Glu Asp Pro Gln
    540             545             550
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agt cca cct cct ctc cct gct gaa aaa cct att gga aac act ttc agt        1973
Ser Pro Pro Pro Leu Pro Ala Glu Lys Pro Ile Gly Asn Thr Phe Ser
555             560             565                     570

aca gta tct gga aag ctc agt aat gtt gag aga act aga aac ttg gaa        2021
Thr Val Ser Gly Lys Leu Ser Asn Val Glu Arg Thr Arg Asn Leu Glu
                575             580                 585

tcc aac cac cca ggt caa aca gga ggt ttt gtg cga gta ccc cca agg        2069
Ser Asn His Pro Gly Gln Thr Gly Gly Phe Val Arg Val Pro Pro Arg
            590             595                 600

ttg cca ccg aga cct gtg aat gga aaa acc att cca act caa cag cct        2117
Leu Pro Pro Arg Pro Val Asn Gly Lys Thr Ile Pro Thr Gln Gln Pro
            605             610             615

cca acc aag gtg ccc cct gag aga cca cct ccc cca aag ctt tct gca        2165
Pro Thr Lys Val Pro Pro Glu Arg Pro Pro Pro Pro Lys Leu Ser Ala
        620             625             630

acc aga aga tct aat aag aaa ctg cct ttt aat cga tcc tct tct gac        2213
Thr Arg Arg Ser Asn Lys Lys Leu Pro Phe Asn Arg Ser Ser Ser Asp
635             640             645                     650

atg gat ctt cag aaa aaa caa agt aac ttg gca act gga ctc tca aaa        2261
Met Asp Leu Gln Lys Lys Gln Ser Asn Leu Ala Thr Gly Leu Ser Lys
                655             660             665

gcc aag agt caa gtt ttt aaa aat caa gat ccg gtg cta ccc cct cgt        2309
Ala Lys Ser Gln Val Phe Lys Asn Gln Asp Pro Val Leu Pro Pro Arg
            670             675             680

ccc aaa cca gga cac cct ctc tac agt aaa tac atg ctg tct gtg cct        2357
Pro Lys Pro Gly His Pro Leu Tyr Ser Lys Tyr Met Leu Ser Val Pro
            685             690             695

cat gga att gcc aat gaa gat att gtc tct caa aac ccc gga gaa ctc        2405
His Gly Ile Ala Asn Glu Asp Ile Val Ser Gln Asn Pro Gly Glu Leu
            700             705             710

tct tgt aag cgt ggg gat gta ctt gtg atg ctg aag cag acg gaa aat        2453
Ser Cys Lys Arg Gly Asp Val Leu Val Met Leu Lys Gln Thr Glu Asn
715             720             725                     730

aat tac ttg gag tgc caa aag gga gaa gac act ggc aga gtt cac ctg        2501
Asn Tyr Leu Glu Cys Gln Lys Gly Glu Asp Thr Gly Arg Val His Leu
            735             740                 745

tct caa atg aag att atc act cca ctt gat gaa cat ctt aga agc aga        2549
Ser Gln Met Lys Ile Ile Thr Pro Leu Asp Glu His Leu Arg Ser Arg
            750             755                 760

cca aac gat cca agc cac gct cag aag cct gtt gac agt ggt gct cct        2597
Pro Asn Asp Pro Ser His Ala Gln Lys Pro Val Asp Ser Gly Ala Pro
            765             770             775

cat gct gtc gtt ctt cat gat ttc cca gca gag caa gtt gat gat ttg        2645
His Ala Val Val Leu His Asp Phe Pro Ala Glu Gln Val Asp Asp Leu
            780             785             790

aac ctc act tct gga gaa att gtt tat ctt ctg gag aag ata gat aca        2693
Asn Leu Thr Ser Gly Glu Ile Val Tyr Leu Leu Glu Lys Ile Asp Thr
795             800             805                     810
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gat tgg tac aga ggg aac tgt aga aac cag att ggc ata ttt cct gcc        2741
Asp Trp Tyr Arg Gly Asn Cys Arg Asn Gln Ile Gly Ile Phe Pro Ala
                815                 820                 825

aac tat gtc aaa gtg att att gat atc cca gaa gga gga aat ggg aaa        2789
Asn Tyr Val Lys Val Ile Ile Asp Ile Pro Glu Gly Gly Asn Gly Lys
                830                 835                 840

aga gaa tgt gtt tca tct cat tgt gtt aaa ggc tca aga tgt gtt gct        2837
Arg Glu Cys Val Ser Ser His Cys Val Lys Gly Ser Arg Cys Val Ala
                845                 850                 855

cgg ttt gaa tat att gga gag cag aag gat gag ttg agt ttc tca gag        2885
Arg Phe Glu Tyr Ile Gly Glu Gln Lys Asp Glu Leu Ser Phe Ser Glu
    860                 865                 870

gga gaa att att att ctt aaa gag tat gtg aat gag gaa tgg gcc aga        2933
Gly Glu Ile Ile Ile Leu Lys Glu Tyr Val Asn Glu Glu Trp Ala Arg
875                 880                 885                 890

gga gaa gtt cga ggc aga act ggg att ttc ccc ctg aac ttt gtg gag        2981
Gly Glu Val Arg Gly Arg Thr Gly Ile Phe Pro Leu Asn Phe Val Glu
                895                 900                 905

cct gtt gag gat tat ccc acc tct ggt gca aat gtt tta agc aca aag        3029
Pro Val Glu Asp Tyr Pro Thr Ser Gly Ala Asn Val Leu Ser Thr Lys
                910                 915                 920

gta cca ctg aaa acc aaa aaa gaa gat tct ggc tca aac tct cag gtt        3077
Val Pro Leu Lys Thr Lys Lys Glu Asp Ser Gly Ser Asn Ser Gln Val
                925                 930                 935

aac agt ctt ccg gca gaa tgg tgt gaa gct ctt cac agt ttt aca gca        3125
Asn Ser Leu Pro Ala Glu Trp Cys Glu Ala Leu His Ser Phe Thr Ala
    940                 945                 950

gag acc agt gat gac tta tca ttc aag agg gga gac cgg atc cag att        3173
Glu Thr Ser Asp Asp Leu Ser Phe Lys Arg Gly Asp Arg Ile Gln Ile
955                 960                 965                 970

ctg gaa cgt ctg gat tct gac tgg tgc agg ggc aga ctg cag gac agg        3221
Leu Glu Arg Leu Asp Ser Asp Trp Cys Arg Gly Arg Leu Gln Asp Arg
                975                 980                 985

gag ggg atc ttc cca gca gtg ttt gtg agg ccc tgc cca gct  gag gca       3269
Glu Gly Ile Phe Pro Ala Val Phe Val Arg Pro Cys Pro Ala  Glu Ala
                990                 995                 1000

aaa agt atg  ttg gcc ata gta ccg  aag ggg agg aag gcc  aaa gcc         3314
Lys Ser Met  Leu Ala Ile Val Pro  Lys Gly Arg Lys Ala  Lys Ala
         1005                 1010                 1015

tta tat gat  ttc cga ggg gag aat  gaa gat gaa ctt tcc  ttc aag         3359
Leu Tyr Asp  Phe Arg Gly Glu Asn  Glu Asp Glu Leu Ser  Phe Lys
         1020                 1025                 1030

gct gga gat  ata ata aca gag ctg  gaa tct gta gat gat  gac tgg         3404
Ala Gly Asp  Ile Ile Thr Glu Leu  Glu Ser Val Asp Asp  Asp Trp
         1035                 1040                 1045

atg agt gga  gaa ctt atg gga aaa  tct gga ata ttt ccc  aaa aac         3449
Met Ser Gly  Glu Leu Met Gly Lys  Ser Gly Ile Phe Pro  Lys Asn
         1050                 1055                 1060
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tac ata cag  ttt cta cag atc agc   tagaggagaa gcttgtctgt              3493
Tyr Ile Gln  Phe Leu Gln Ile Ser
    1065                  1070

gttccttggc acaagaactc acttgaacta tcaccttgac tatcagatat gtttttgcac     3553

tatttttttt aactgaaaaa gaaatatcta agctgtacat ggtacactag aattttctga     3613

aagcagaaaa cgttcagatt ttgtagttaa ttttcattac aatagaaaca cgcacatgga     3673

aacccatgag ctaggattct accgaggaaa acatctagtg ggattagcaa ggtgaaggga     3733

aagcatctgg tggcatggca gcatggggag gctcacacac agaagttgca cgtggacatc     3793

tgttttaatc agcacaagtg aattaaccat gcttcttcat tttttttact ttagttaaaa     3853

aagaggacat ttaatattct acatgctgta actatcagga catggttagc aatctcaatt     3913

tcatttttga tattcaaatt aattcttaca gcttgagcat atcagcctta ttaccagagc     3973

aaatccttcc ttcagatggg atagtttact gactagttgg agcatttgta agcacatggt     4033

gaaatcagcc cctgcccacc aaaataatct ttatgttacc aagtgattcc catttgtcta     4093

aggatttgaa gggggtctaa attggatgta tcttagtcta aagaaccaaa accatccctg     4153

aaatgccttg ctaatacaac taatccttcc atatatgtgc catacttatt ttttcctca      4213

gtgtatactt tatgttaaca gggttattac aaagcacatt ttctgaatct gcaatcattc     4273

ctttgacaat tactggaccc aaaggaaaat tcattttctt tgcattattc cagtaatata     4333

taaaaactgt gtcttgttat agtagtacat tatgaatcac atataaaatc ttacaataca     4393

gaacaactgt taagatggaa aacagtgcca aacctccaca gctcatttct ttgtaatata     4453

atcagaatga aaataattt aagaggacag aagactggta cttttttgtt ttattttttc      4513

tctagcttat ccctgcacaa ttattagagt gaatgaaaaa ccactttcct gctttccatt     4573

gttataaatt ctaagcttaa gataaaagtg gttctttaca tgactgaatc aattacaatt     4633

tatgggctag agccaaatag gttgaagaca atcatccaaa cagatcaatg gaatagaatt     4693

tcattggaaa tgtaaaacac tttcccaaca atggtcatga ctttcttctg tttttgagaa     4753

gagtttcata tgctggacca cattttagct tttattgttt tttttttccc attgtccaaa     4813

aagttaagca acaagtggcc acacttttac gtgactacaa cctggagttc tgcaaagaag     4873

gtaatattta cttggtcttt gactaaagtt atctccccat tctatggtta cattttattt     4933

tggactatgg ggacttctaa tacgttttgg taaagaagag agtataaaga aaattcttgt     4993

caaatttcac tcaaaagtaa tttcatgaga aatcaatgat ttaaagcatt atccaaatta     5053

aattatcatt tgcagcaaac tgtacaacag caggaaggat atggaatgga acatgaggta     5113

tatatctttg cctttataat tttaacatct tatattgaag attctgaaaa cctatcttta     5173

ttagaggaaa atctcaatct tcagttttgg ccttctgtca ccagaatgat aagtgcaata     5233

gttgtaaatc tacttgacac tgtaataaac tgaactgaac tttcaaaaaa aaaaaaaaaa     5293
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Met Ala Glu Gly Arg Arg Arg Glu Asp Glu Glu Glu Glu Leu Arg Glu
1   5   10   15

Arg Arg Glu Leu Gly Gly Gln Arg Arg Ala Arg Gly Arg Ala Leu Ser
                20   25   30

Gly His Ser Ala Ala Asp Arg Asn Glu Arg Asn Lys Pro Glu His Arg
            35   40   45

Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile Arg Ala Val Ile Lys Arg
        50   55   60

Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu His Arg Asp Arg Arg Arg
65   70   75   80

Pro Glu Ile Thr Ile Val Ala Ala Glu Pro Leu Arg Pro Ala Ser Trp
                85   90   95

Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly Phe Pro Thr Ser Ser Ala
            100   105   110

Ala Gly Ser Trp Arg Pro Asn Glu Leu Val Pro Ala Glu Leu Pro Pro
            115   120   125

Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn Gln Val Gln Val Asn Thr
        130   135   140

Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro Arg His Thr Ile Thr Ser
145   150   155   160

Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile Asp Asn Asp Leu Pro Gln
                165   170   175

Thr Leu Gln Ala Pro Leu Lys Pro Leu Gln Pro Phe Ser Ala Val Ser
            180   185   190

Ser Gly Asn Leu Pro Thr Asn Val Ala Pro Leu Ile Val Phe Asp Ile
        195   200   205

Ser Glu Glu Pro Asn Cys Pro Glu Asn Pro Ser Ala Thr Arg Cys Pro
        210   215   220

Val Pro Lys Pro Arg Ser Lys Ser Asn Leu Arg Pro Ile Pro Arg Asp
225   230   235   240

Ser His Ile Lys Glu Gln Ser Gln Gln Lys Ile Ser Pro Ala Ala Val
                245   250   255

Gly Glu Glu Ser Ser Pro Gly Arg Pro Gln Ser Leu Leu Asp Asn Ala
                260   265   270

Ser Thr Ser Asp Ser Gln Ala Val Met Asn Ile Met Asn Thr Glu Gln
                275   280   285

Ser Gln Asn Ser Ile Val Ser Arg Ile Lys Val Phe Glu Gly Gln Thr
        290   295   300

Asn Ile Glu Thr Ser Gly Leu Pro Lys Lys Pro Glu Ile Thr Pro Arg
305   310   315   320

Ser Leu Pro Pro Lys Pro Thr Val Ser Ser Gly Lys Pro Ser Val Ala
                325   330   335

Pro Lys Pro Ala Ala Asn Arg Ala Ser Gly Glu Trp Asp Ser Gly Thr
                340   345   350

Glu Asn Arg Leu Lys Val Thr Ser Lys Glu Gly Leu Thr Pro Tyr Pro
                355   360   365

Pro Leu Gln Glu Ala Gly Ser Ile Pro Val Thr Lys Pro Glu Leu Pro
        370   375   380

Lys Lys Pro Asn Pro Gly Leu Ile Arg Ser Val Asn Pro Glu Ile Pro
385   390   395   400

Gly Arg Gly Pro Leu Ala Glu Ser Ser Asp Ser Gly Lys Lys Val Pro
                405   410   415

Thr Pro Ala Pro Arg Pro Leu Leu Leu Lys Lys Ser Val Ser Ser Glu
                420   425   430

Asn Pro Thr Tyr Pro Ser Ala Pro Leu Lys Pro Val Thr Val Pro Pro
        435   440   445

Arg Leu Ala Gly Ala Ser Gln Ala Lys Ala Tyr Lys Ser Leu Gly Glu
        450   455   460

Gly Pro Pro Ala Asn Pro Pro Val Pro Val Leu Gln Ser Lys Pro Leu
465   470   475   480

Val Asp Ile Asp Leu Ile Ser Phe Asp Asp Asp Val Leu Pro Thr Pro
            485   490   495

Ser Gly Asn Leu Ala Glu Glu Ser Val Gly Ser Glu Met Val Leu Asp
            500   505   510

Pro Phe Gln Leu Pro Ala Lys Thr Glu Pro Ile Lys Glu Arg Ala Val
            515   520   525

Gln Pro Ala Pro Thr Arg Lys Pro Thr Val Ile Arg Ile Pro Ala Lys
        530   535   540

Pro Gly Lys Cys Leu His Glu Asp Pro Gln Ser Pro Pro Pro Leu Pro
545   550   555   560

Ala Glu Lys Pro Ile Gly Asn Thr Phe Ser Thr Val Ser Gly Lys Leu
            565   570   575

Ser Asn Val Glu Arg Thr Arg Asn Leu Glu Ser Asn His Pro Gly Gln
            580   585   590

Thr Gly Gly Phe Val Arg Val Pro Pro Arg Leu Pro Pro Arg Pro Val
            595   600   605

Asn Gly Lys Thr Ile Pro Thr Gln Gln Pro Pro Thr Lys Val Pro Pro
    610   615   620

Glu Arg Pro Pro Pro Lys Leu Ser Ala Thr Arg Arg Ser Asn Lys
625   630   635   640

Lys Leu Pro Phe Asn Arg Ser Ser Ser Asp Met Asp Leu Gln Lys Lys
                645   650   655

Gln Ser Asn Leu Ala Thr Gly Leu Ser Lys Ala Lys Ser Gln Val Phe
            660   665   670

Lys Asn Gln Asp Pro Val Leu Pro Pro Arg Pro Lys Pro Gly His Pro
        675   680   685

Leu Tyr Ser Lys Tyr Met Leu Ser Val Pro His Gly Ile Ala Asn Glu
    690   695   700

Asp Ile Val Ser Gln Asn Pro Gly Glu Leu Ser Cys Lys Arg Gly Asp
705   710   715   720

Val Leu Val Met Leu Lys Gln Thr Glu Asn Asn Tyr Leu Glu Cys Gln
            725   730   735

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Lys Gly Glu Asp Thr Gly Arg Val His Leu Ser Gln Met Lys Ile Ile
        740                 745                 750

Thr Pro Leu Asp Glu His Leu Arg Ser Arg Pro Asn Asp Pro Ser His
        755                 760                 765

Ala Gln Lys Pro Val Asp Ser Gly Ala Pro His Ala Val Val Leu His
        770                 775                 780

Asp Phe Pro Ala Glu Gln Val Asp Asp Leu Asn Leu Thr Ser Gly Glu
785                 790                 795                 800

Ile Val Tyr Leu Leu Glu Lys Ile Asp Thr Asp Trp Tyr Arg Gly Asn
                805                 810                 815

Cys Arg Asn Gln Ile Gly Ile Phe Pro Ala Asn Tyr Val Lys Val Ile
                820                 825                 830

Ile Asp Ile Pro Glu Gly Gly Asn Gly Lys Arg Glu Cys Val Ser Ser
        835                 840                 845

His Cys Val Lys Gly Ser Arg Cys Val Ala Arg Phe Glu Tyr Ile Gly
        850                 855                 860

Glu Gln Lys Asp Glu Leu Ser Phe Ser Glu Gly Glu Ile Ile Ile Leu
865                 870                 875                 880

Lys Glu Tyr Val Asn Glu Glu Trp Ala Arg Gly Glu Val Arg Gly Arg
                885                 890                 895

Thr Gly Ile Phe Pro Leu Asn Phe Val Glu Pro Val Glu Asp Tyr Pro
                900                 905                 910

Thr Ser Gly Ala Asn Val Leu Ser Thr Lys Val Pro Leu Lys Thr Lys
        915                 920                 925

Lys Glu Asp Ser Gly Ser Asn Ser Gln Val Asn Ser Leu Pro Ala Glu
        930                 935                 940

Trp Cys Glu Ala Leu His Ser Phe Thr Ala Glu Thr Ser Asp Asp Leu
945                 950                 955                 960

Ser Phe Lys Arg Gly Asp Arg Ile Gln Ile Leu Glu Arg Leu Asp Ser
                965                 970                 975

Asp Trp Cys Arg Gly Arg Leu Gln Asp Arg Glu Gly Ile Phe Pro Ala
        980                 985                 990
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Val Phe Val Arg Pro Cys Pro Ala  Glu Ala Lys Ser Met  Leu Ala Ile
       995               1000               1005


Val Pro  Lys Gly Arg Lys Ala  Lys Ala Leu Tyr Asp  Phe Arg Gly
    1010               1015               1020


Glu Asn  Glu Asp Glu Leu Ser  Phe Lys Ala Gly Asp  Ile Ile Thr
    1025               1030               1035


Glu Leu  Glu Ser Val Asp Asp  Asp Trp Met Ser Gly  Glu Leu Met
    1040               1045               1050


Gly Lys  Ser Gly Ile Phe Pro  Lys Asn Tyr Ile Gln  Phe Leu Gln
    1055               1060               1065


Ile Ser
    1070



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gcccgcgccc tgccgctgcc cggccggctg caggtggagt tcgcggaggt ggccatttcc     120

acagccgccg ccgacgcctc ctctccggga gccgccttcc ccccggcccg agggcggtgg     180

cgtggggcgc cgggtgcagg cgttctgggg cgccggggcc gcagctcgct ggccatcccg     240

cggctgcgcc ccgcgcctcg ccc atg gct gag ggc cgg cgg cgg gag gac gag     293
                          Met Ala Glu Gly Arg Arg Arg Glu Asp Glu
                           1               5                  10

gag gaa gag cta cgc gag cgc cgc gaa ctt ggt ggc cag cgc cgc gcc     341
Glu Glu Glu Leu Arg Glu Arg Arg Glu Leu Gly Gly Gln Arg Arg Ala
                15                  20                  25

cgg ggc cgt gcg ctc tcg ggc cac tcg gcc gca gat cgc aac gaa cga     389
Arg Gly Arg Ala Leu Ser Gly His Ser Ala Ala Asp Arg Asn Glu Arg
            30                  35                  40

aat aaa cca gaa cat cgt tct tca agc caa gga ccc ttg tca tcc att     437
Asn Lys Pro Glu His Arg Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile
        45                  50                  55

aga gcg gta atc aag aga tct tct cgg act tct att cag agt gaa ctt     485
Arg Ala Val Ile Lys Arg Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu
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cat cga gat aga agg cgc cca gag atc acc att gtg gca gct gag cca   533
His Arg Asp Arg Arg Arg Pro Glu Ile Thr Ile Val Ala Ala Glu Pro
75   80   85   90

ctg agg cca gcc tcg tgg ttt cca gga acc cca ccc cca gga ctg gga   581
Leu Arg Pro Ala Ser Trp Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly
                95   100   105

ttt cct aca tca tct gca gca ggc tct tgg agg cct aat gag ctg gtt   629
Phe Pro Thr Ser Ser Ala Ala Gly Ser Trp Arg Pro Asn Glu Leu Val
                110   115   120

cct gct gag ctc cca cca tct tat gaa caa gtt ata aaa gaa atc aac   677
Pro Ala Glu Leu Pro Pro Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn
            125   130   135

caa gtt caa gtt aat act aca aat aat aat aat gct gct gct act cca   725
Gln Val Gln Val Asn Thr Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro
    140   145   150

agg cac act att act tct gca act cag act gac ttt tca gaa gaa ata   773
Arg His Thr Ile Thr Ser Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile
155   160   165   170

gac aac gat ctg cct caa aca cta cag gca cct ctc aag cct ctt cag   821
Asp Asn Asp Leu Pro Gln Thr Leu Gln Ala Pro Leu Lys Pro Leu Gln
                175   180   185

cct ttc tca gca gtc tcg tct ggc aat ctt cca aca aat gtg gca cct   869
Pro Phe Ser Ala Val Ser Ser Gly Asn Leu Pro Thr Asn Val Ala Pro
            190   195   200

tta atc gtc ttt gat att tct gaa gaa ccg aat tgt cca gaa aac ccc   917
Leu Ile Val Phe Asp Ile Ser Glu Glu Pro Asn Cys Pro Glu Asn Pro
        205   210   215

agt gct aca aga tgt cca gtg cca aaa cca aga tca aaa agc aac ctc   965
Ser Ala Thr Arg Cys Pro Val Pro Lys Pro Arg Ser Lys Ser Asn Leu
    220   225   230

aga cca ata ccc aga gat tct cac att aaa gag caa agt caa cag aaa   1013
Arg Pro Ile Pro Arg Asp Ser His Ile Lys Glu Gln Ser Gln Gln Lys
235   240   245   250

atc agc cca gca gcc gta gga gag gag tca tcc cca ggc cgg ccc cag   1061
Ile Ser Pro Ala Ala Val Gly Glu Glu Ser Ser Pro Gly Arg Pro Gln
            255   260   265

tct ctg ctg gac aac gct agc acc tca gac agt cag gca gtg atg aac   1109
Ser Leu Leu Asp Asn Ala Ser Thr Ser Asp Ser Gln Ala Val Met Asn
            270   275   280

att atg aac aca gaa caa agc caa aat agt att gtt tcc aga att aaa   1157
Ile Met Asn Thr Glu Gln Ser Gln Asn Ser Ile Val Ser Arg Ile Lys
            285   290   295

gtg ttt gag ggt cag aca aac ata gaa acc tca gga ctg ccc aag aaa   1205
Val Phe Glu Gly Gln Thr Asn Ile Glu Thr Ser Gly Leu Pro Lys Lys
    300   305   310

cca gaa att act cca cgt tca ctt cct cca aag cct act gtt tcc tca   1253
Pro Glu Ile Thr Pro Arg Ser Leu Pro Pro Lys Pro Thr Val Ser Ser

FIG   320   325   330

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ggg aaa cct tct gta gct ccc aaa cca gct gct aac aga gct tct gga      1301
Gly Lys Pro Ser Val Ala Pro Lys Pro Ala Ala Asn Arg Ala Ser Gly
            335                 340                 345

gag tgg gac tct ggg act gag aac aga ctc aag gtg acc tcc aag gaa      1349
Glu Trp Asp Ser Gly Thr Glu Asn Arg Leu Lys Val Thr Ser Lys Glu
            350                 355                 360

gga ctc acc cca tac cct ccc ctg caa gaa gcg gga agc atc cca gta      1397
Gly Leu Thr Pro Tyr Pro Pro Leu Gln Glu Ala Gly Ser Ile Pro Val
            365                 370                 375

acc aaa cct gaa ttg cca aag aaa cca aac cct ggc ctt ata cga agt      1445
Thr Lys Pro Glu Leu Pro Lys Lys Pro Asn Pro Gly Leu Ile Arg Ser
        380                 385                 390

gtt aat cct gag att ccg gga aga ggg ccc ctg gct gag agc tct gat      1493
Val Asn Pro Glu Ile Pro Gly Arg Gly Pro Leu Ala Glu Ser Ser Asp
395                 400                 405                 410

agt ggg aag aaa gtg cca act cct gcc ccg cgg cct ttg ctg ctg aag      1541
Ser Gly Lys Lys Val Pro Thr Pro Ala Pro Arg Pro Leu Leu Leu Lys
                415                 420                 425

aaa tct gtt tcc tca gaa aac ccc acc tac cct tca gct cca ctg aaa      1589
Lys Ser Val Ser Ser Glu Asn Pro Thr Tyr Pro Ser Ala Pro Leu Lys
                430                 435                 440

cct gtc act gtt cct ccc cga ctc gca ggg gca tca caa gcc aaa gca      1637
Pro Val Thr Val Pro Pro Arg Leu Ala Gly Ala Ser Gln Ala Lys Ala
            445                 450                 455

tac aag tca ctg gga gaa ggg ccc cca gcc aac ccc cca gtt cca gtt      1685
Tyr Lys Ser Leu Gly Glu Gly Pro Pro Ala Asn Pro Pro Val Pro Val
            460                 465                 470

ctg cag agc aag ccc ttg gtg gac atc gat ctc atc agc ttt gat gat      1733
Leu Gln Ser Lys Pro Leu Val Asp Ile Asp Leu Ile Ser Phe Asp Asp
475                 480                 485                 490

gat gtt ttg ccc acc cca tcg ggg aac ctg gct gaa gaa tct gtt ggt      1781
Asp Val Leu Pro Thr Pro Ser Gly Asn Leu Ala Glu Glu Ser Val Gly
                495                 500                 505

tca gag atg gtt cta gat ccc ttt cag ctc cct gca aaa aca gaa cca      1829
Ser Glu Met Val Leu Asp Pro Phe Gln Leu Pro Ala Lys Thr Glu Pro
            510                 515                 520

ata aaa gaa cga gca gtt caa cca gca ccc acc agg aag ccc act gta      1877
Ile Lys Glu Arg Ala Val Gln Pro Ala Pro Thr Arg Lys Pro Thr Val
            525                 530                 535

att cga att cca gcc aaa cca gga aaa tgt tta cat gag gat cca caa      1925
Ile Arg Ile Pro Ala Lys Pro Gly Lys Cys Leu His Glu Asp Pro Gln
        540                 545                 550

agt cca cct cct ctc cct gct gaa aaa cct att gga aac act ttc agt      1973
Ser Pro Pro Pro Leu Pro Ala Glu Lys Pro Ile Gly Asn Thr Phe Ser
555                 560                 565                 570

aca gta tct gga aag ctc agt aat gtt gag aga act aga aac ttg gaa      2021
Thr Val Ser Gly Lys Leu Ser Asn Val Glu Arg Thr Arg Asn Leu Glu
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                    575                      580                       585

tcc aac cac cca ggt caa aca gga ggt ttt gtg cga gta ccc cca agg        2069
Ser Asn His Pro Gly Gln Thr Gly Gly Phe Val Arg Val Pro Pro Arg
            590                      595                      600

ttg cca ccg aga cct gtg aat ggt cat cta att atg aca aca ata ctc        2117
Leu Pro Pro Arg Pro Val Asn Gly His Leu Ile Met Thr Thr Ile Leu
            605                      610                      615

ttc atg tcg tgc tct gcc cga gcc cgg atg ggt ttc act ggt att gta        2165
Phe Met Ser Cys Ser Ala Arg Ala Arg Met Gly Phe Thr Gly Ile Val
            620                      625                      630

cac att cta cga ttc aag ctt ctt ctc gag tcg tgg tgc tgg agc gag        2213
His Ile Leu Arg Phe Lys Leu Leu Leu Glu Ser Trp Cys Trp Ser Glu
635                      640                      645                      650

gct ggt ggc tca gtg ata gag ctg gca gag gca ttc gct cgt cta cag        2261
Ala Gly Gly Ser Val Ile Glu Leu Ala Glu Ala Phe Ala Arg Leu Gln
                    655                      660                      665

ata atg tct tcg ttc tcc tcc aaa cat gga tgg tcc ttc ata gac tgg        2309
Ile Met Ser Ser Phe Ser Ser Lys His Gly Trp Ser Phe Ile Asp Trp
            670                      675                      680

tcg gtc aga ctt ccg gtc ata gga tgg cct agt caa aac ccc ctc ttc        2357
Ser Val Arg Leu Pro Val Ile Gly Trp Pro Ser Gln Asn Pro Leu Phe
            685                      690                      695

tgg atg agg aat ggt ctt ttt tgt ctc gat atg act gag ctc tat cat        2405
Trp Met Arg Asn Gly Leu Phe Cys Leu Asp Met Thr Glu Leu Tyr His
            700                      705                      710

ctc gag aca aaa aaa acc att cca act caa cag cct cca acc aag gtg        2453
Leu Glu Thr Lys Lys Thr Ile Pro Thr Gln Gln Pro Pro Thr Lys Val
715                      720                      725                      730

ccc cct gag aga cca cct ccc cca aag ctt tct gca acc aga aga tct        2501
Pro Pro Glu Arg Pro Pro Pro Lys Leu Ser Ala Thr Arg Arg Ser
                    735                      740                      745

aat aag aaa ctg cct ttt aat cga tcc tct tct gac atg gat ctt cag        2549
Asn Lys Lys Leu Pro Phe Asn Arg Ser Ser Ser Asp Met Asp Leu Gln
            750                      755                      760

aaa aaa caa agt aac ttg gca act gga ctc tca aaa gcc aag agt caa        2597
Lys Lys Gln Ser Asn Leu Ala Thr Gly Leu Ser Lys Ala Lys Ser Gln
            765                      770                      775

gtt ttt aaa aat caa gat ccg gtg cta ccc cct cgt ccc aaa cca gga        2645
Val Phe Lys Asn Gln Asp Pro Val Leu Pro Pro Arg Pro Lys Pro Gly
            780                      785                      790

cac cct ctc tac agt aaa tac atg cgt ggg gat gta ctt gtg atg ctg        2693
His Pro Leu Tyr Ser Lys Tyr Met Arg Gly Asp Val Leu Val Met Leu
795                      800                      805                      810

aag cag acg gaa aat aat tac ttg gag tgc caa aag gga gaa gac act        2741
Lys Gln Thr Glu Asn Asn Tyr Leu Glu Cys Gln Lys Gly Glu Asp Thr
                    815                      820                      825

ggc aga gtt cac ctg tct caa atg aag att atc act cca ctt gat gaa        2789
Gly Arg Val His Leu Ser Gln Met Lys Ile Ile Thr Pro Leu Asp Glu
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cat ctt aga agc aga cca aac gat cca agc cac gct cag aag cct gtt          2837
His Leu Arg Ser Arg Pro Asn Asp Pro Ser His Ala Gln Lys Pro Val
        845                     850                 855

gac agt ggt gct cct cat gct gtc gtt ctt cat gat ttc cca gca gag          2885
Asp Ser Gly Ala Pro His Ala Val Val Leu His Asp Phe Pro Ala Glu
    860                     865                 870

caa gtt gat gat ttg aac ctc act tct gga gaa att gtt tat ctt ctg          2933
Gln Val Asp Asp Leu Asn Leu Thr Ser Gly Glu Ile Val Tyr Leu Leu
875                 880                     885                 890

gag aag ata gat aca gat tgg tac aga ggg aac tgt aga aac cag att          2981
Glu Lys Ile Asp Thr Asp Trp Tyr Arg Gly Asn Cys Arg Asn Gln Ile
                895                 900                 905

ggc ata ttt cct gcc aac tat gtc aaa gtg att att gat atc cca gaa          3029
Gly Ile Phe Pro Ala Asn Tyr Val Lys Val Ile Ile Asp Ile Pro Glu
                910                 915                 920

gga gga aat ggg aaa aga gaa tgt gtt tca tct cat tgt gtt aaa ggc          3077
Gly Gly Asn Gly Lys Arg Glu Cys Val Ser Ser His Cys Val Lys Gly
            925                 930                 935

tca aga tgt gtt gct cgg ttt gaa tat att gga gag cag aag gat gag          3125
Ser Arg Cys Val Ala Arg Phe Glu Tyr Ile Gly Glu Gln Lys Asp Glu
        940                 945                 950

ttg agt ttc tca gag gga gaa att att att ctt aaa gag tat gtg aat          3173
Leu Ser Phe Ser Glu Gly Glu Ile Ile Ile Leu Lys Glu Tyr Val Asn
955                 960                 965                 970

gag gaa tgg gcc aga gga gaa gtt cga ggc aga act ggg att ttc ccc          3221
Glu Glu Trp Ala Arg Gly Glu Val Arg Gly Arg Thr Gly Ile Phe Pro
                975                 980                 985

ctg aac ttt gtg gag cct gtt gag gat tat ccc acc tct ggg tgc aaa          3269
Leu Asn Phe Val Glu Pro Val Glu Asp Tyr Pro Thr Ser Gly Cys Lys
            990                 995                 1000

tgt ttt aag cac aaa ggt acc act gaa aac caa aaa aga aga ttc             3314
Cys Phe Lys His Lys Gly Thr Thr Glu Asn Gln Lys Arg Arg Phe
        1005            1010            1015

tgg ctc aaa ctc tca ggt taacagtctt ccggcagaat ggtgtgaagc                3362
Trp Leu Lys Leu Ser Gly
        1020
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tcttcacagt tttacagcag agaccagtga tgacttatca ttcaagaggg gagaccggat        3422

ccagattctg gaacgtctgg attctgactg gtgcaggggc agactgcagg acagggaggg        3482

gatcttccca gcagtgtttg tgaggccctg cccagctgag gcaaaaagta tgttggccat        3542

agtaccgaag gggaggaagg ccaaagcctt atatgatttc gaggggagaa atgaagatga        3602

actttccttc aaggctggag atataataac agagctggaa tctgtagatg atgactggat        3662

gagtggagaa cttatgggaa aatctggaat atttcccaaa aactacatac agtttctaca        3722

gatcagctag aggagaagct tgtctgtgtt ccttggcaca agaactcact tgaactatca        3782
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tcattacaat agaaacacgc acatggaaac ccatgagcta ggattctacc gaggaaaaca   3962

tctagtggga ttagcaaggt gaagggaaag catctggtgg catggcagca tggggaggct   4022

cacacacaga agttgcacgt ggacatctgt tttaatcagc acaagtgaat taaccatgct   4082

tcttcatttt ttttacttta gttaaaaaag aggacattta atattctaca tgctgtaact   4142

atcaggacat ggttagcaat ctcaatttca tttttgatat tcaaattaat tcttacagct   4202

tgagcatatc agccttatta ccagagcaaa tccttccttc agatgggata gtttactgac   4262

tagttggagc atttgtaagc acatggtgaa atcagcccct gcccaccaaa ataatcttta   4322

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gcacattttc tgaatctgca atcattcctt tgacaattac tggacccaaa ggaaaattca   4562

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gaatcacata taaaatctta caatacagaa caactgttaa gatggaaaac agtgccaaac   4682

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                20   25   30

Gly His Ser Ala Ala Asp Arg Asn Glu Arg Asn Lys Pro Glu His Arg
            35   40   45

Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile Arg Ala Val Ile Lys Arg
        50   55   60

Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu His Arg Asp Arg Arg Arg
65   70   75   80

Pro Glu Ile Thr Ile Val Ala Ala Glu Pro Leu Arg Pro Ala Ser Trp
                85   90   95

Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly Phe Pro Thr Ser Ser Ala
            100   105   110

Ala Gly Ser Trp Arg Pro Asn Glu Leu Val Pro Ala Glu Leu Pro Pro
        115   120   125

Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn Gln Val Gln Val Asn Thr
    130   135   140

Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro Arg His Thr Ile Thr Ser
145   150   155   160

Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile Asp Asn Asp Leu Pro Gln
            165   170   175

Thr Leu Gln Ala Pro Leu Lys Pro Leu Gln Pro Phe Ser Ala Val Ser
            180   185   190

Ser Gly Asn Leu Pro Thr Asn Val Ala Pro Leu Ile Val Phe Asp Ile
        195   200   205

Ser Glu Glu Pro Asn Cys Pro Glu Asn Pro Ser Ala Thr Arg Cys Pro
    210   215   220

Val Pro Lys Pro Arg Ser Lys Ser Asn Leu Arg Pro Ile Pro Arg Asp
225   230   235   240

Ser His Ile Lys Glu Gln Ser Gln Gln Lys Ile Ser Pro Ala Ala Val
                245   250   255

Gly Glu Glu Ser Ser Pro Gly Arg Pro Gln Ser Leu Leu Asp Asn Ala
            260   265   270

Ser Thr Ser Asp Ser Gln Ala Val Met Asn Ile Met Asn Thr Glu Gln
        275   280   285

Ser Gln Asn Ser Ile Val Ser Arg Ile Lys Val Phe Glu Gly Gln Thr
    290   295   300

Asn Ile Glu Thr Ser Gly Leu Pro Lys Lys Pro Glu Ile Thr Pro Arg
305   310   315   320

Ser Leu Pro Pro Lys Pro Thr Val Ser Ser Gly Lys Pro Ser Val Ala
            325   330   335

Pro Lys Pro Ala Ala Asn Arg Ala Ser Gly Glu Trp Asp Ser Gly Thr
            340   345   350

Glu Asn Arg Leu Lys Val Thr Ser Lys Glu Gly Leu Thr Pro Tyr Pro
            355   360   365

Pro Leu Gln Glu Ala Gly Ser Ile Pro Val Thr Lys Pro Glu Leu Pro
    370   375   380

Lys Lys Pro Asn Pro Gly Leu Ile Arg Ser Val Asn Pro Glu Ile Pro
385   390   395   400

Gly Arg Gly Pro Leu Ala Glu Ser Ser Asp Ser Gly Lys Lys Val Pro
            405   410   415

Thr Pro Ala Pro Arg Pro Leu Leu Leu Lys Lys Ser Val Ser Ser Glu
            420   425   430

Asn Pro Thr Tyr Pro Ser Ala Pro Leu Lys Pro Val Thr Val Pro Pro
            435   440   445

Arg Leu Ala Gly Ala Ser Gln Ala Lys Ala Tyr Lys Ser Leu Gly Glu
    450   455   460

Gly Pro Pro Ala Asn Pro Pro Val Pro Val Leu Gln Ser Lys Pro Leu
465   470   475   480

Val Asp Ile Asp Leu Ile Ser Phe Asp Asp Asp Val Leu Pro Thr Pro
            485   490   495

Ser Gly Asn Leu Ala Glu Glu Ser Val Gly Ser Glu Met Val Leu Asp
        500   505   510

Pro Phe Gln Leu Pro Ala Lys Thr Glu Pro Ile Lys Glu Arg Ala Val
        515   520   525

Gln Pro Ala Pro Thr Arg Lys Pro Thr Val Ile Arg Ile Pro Ala Lys
    530   535   540

Pro Gly Lys Cys Leu His Glu Asp Pro Gln Ser Pro Pro Pro Leu Pro
543   550   555   560

Ala Glu Lys Pro Ile Gly Asn Thr Phe Ser Thr Val Ser Gly Lys Leu
                565   570   575

Ser Asn Val Glu Arg Thr Arg Asn Leu Glu Ser Asn His Pro Gly Gln
            580   585   590

Thr Gly Gly Phe Val Arg Val Pro Pro Arg Leu Pro Pro Arg Pro Val
        595   600   605

Asn Gly His Leu Ile Met Thr Thr Ile Leu Phe Met Ser Cys Ser Ala
    610   615   620

Arg Ala Arg Met Gly Phe Thr Gly Ile Val His Ile Leu Arg Phe Lys
625   630   635   640

Leu Leu Leu Glu Ser Trp Cys Trp Ser Glu Ala Gly Gly Ser Val Ile
                645   650   655

Glu Leu Ala Glu Ala Phe Ala Arg Leu Gln Ile Met Ser Ser Phe Ser
            660   665   670

Ser Lys His Gly Trp Ser Phe Ile Asp Trp Ser Val Arg Leu Pro Val
        675   680   685

Ile Gly Trp Pro Ser Gln Asn Pro Leu Phe Trp Met Arg Asn Gly Leu
    690   695   700

Phe Cys Leu Asp Met Thr Glu Leu Tyr His Leu Glu Thr Lys Lys Thr
705   710   715   720

Ile Pro Thr Gln Gln Pro Pro Thr Lys Val Pro Pro Glu Arg Pro Pro
            725   730   735

Pro Pro Lys Leu Ser Ala Thr Arg Arg Ser Asn Lys Lys Leu Pro Phe
        740   745   750

Asn Arg Ser Ser Ser Asp Met Asp Leu Gln Lys Lys Gln Ser Asn Leu
        755   760   765

Ala Thr Gly Leu Ser Lys Ala Lys Ser Gln Val Phe Lys Asn Gln Asp
        770   775   780

Pro Val Leu Pro Pro Arg Pro Lys Pro Gly His Pro Leu Tyr Ser Lys
785   790   795   800

Tyr Met Arg Gly Asp Val Leu Val Met Leu Lys Gln Thr Glu Asn Asn
                805   810   815

Tyr Leu Glu Cys Gln Lys Gly Glu Asp Thr Gly Arg Val His Leu Ser
            820   825   830

Gln Met Lys Ile Ile Thr Pro Leu Asp Glu His Leu Arg Ser Arg Pro
        835   840   845

Asn Asp Pro Ser His Ala Gln Lys Pro Val Asp Ser Gly Ala Pro His
    850   855   860

Ala Val Val Leu His Asp Phe Pro Ala Glu Gln Val Asp Asp Leu Asn
865   870   875   880

Leu Thr Ser Gly Glu Ile Val Tyr Leu Leu Glu Lys Ile Asp Thr Asp
                885   890   895

Trp Tyr Arg Gly Asn Cys Arg Asn Gln Ile Gly Ile Phe Pro Ala Asn
            900   905   910

Tyr Val Lys Val Ile Ile Asp Ile Pro Glu Gly Gly Asn Gly Lys Arg
        915   920   925

Glu Cys Val Ser Ser His Cys Val Lys Gly Ser Arg Cys Val Ala Arg
    930   935   940

Phe Glu Tyr Ile Gly Glu Gln Lys Asp Glu Leu Ser Phe Ser Glu Gly
945   950   955   960

Glu Ile Ile Ile Leu Lys Glu Tyr Val Asn Glu Glu Trp Ala Arg Gly
                965   970   975

Glu Val Arg Gly Arg Thr Gly Ile Phe Pro Leu Asn Phe Val Glu Pro
            980   985   990

Val Glu Asp Tyr Pro Thr Ser Gly   Cys Lys Cys Phe Lys   His Lys Gly
        995   1000   1005

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acagccgccg ccgacgcctc ctctccggga gccgccttcc ccccggcccg agggcggtgg     180

cgtggggcgc cgggtgcagg cgttctgggg cgccggggcc gcagctcgct ggccatcccg     240

cggctgcgcc ccgcgcctcg ccc atg gct gag ggc cgg cgg cgg gag gac gag     293
                          Met Ala Glu Gly Arg Arg Arg Glu Asp Glu
                           1               5                   10

gag gaa gag cta cgc gag cgc cgc gaa ctt ggt ggc cag cgc cgc gcc     341
Glu Glu Glu Leu Arg Glu Arg Arg Glu Leu Gly Gly Gln Arg Arg Ala
                15              20                  25

cgg ggc cgt gcg ctc tcg ggc cac tcg gcc gca gat cgc aac gaa cga     389
Arg Gly Arg Ala Leu Ser Gly His Ser Ala Ala Asp Arg Asn Glu Arg
            30                  35                  40

aat aaa cca gaa cat cgt tct tca agc caa gga ccc ttg tca tcc att     437
Asn Lys Pro Glu His Arg Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile
        45                  50                  55

aga gcg gta atc aag aga tct tct cgg act tct att cag agt gaa ctt     485
Arg Ala Val Ile Lys Arg Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu
    60                  65                  70

cat cga gat aga agg cgc cca gag atc acc att gtg gca gct gag cca     533
His Arg Asp Arg Arg Arg Pro Glu Ile Thr Ile Val Ala Ala Glu Pro
75                  80                  85                  90

ctg agg cca gcc tcg tgg ttt cca gga acc cca ccc cca gga ctg gga     581
Leu Arg Pro Ala Ser Trp Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly
                95                  100                 105

ttt cct aca tca tct gca gca ggc tct tgg agg cct aat gag ctg gtt     629
Phe Pro Thr Ser Ser Ala Ala Gly Ser Trp Arg Pro Asn Glu Leu Val
            110                 115                 120

cct gct gag ctc cca cca tct tat gaa caa gtt ata aaa gaa atc aac     677
Pro Ala Glu Leu Pro Pro Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn
        125                 130                 135

caa gtt caa gtt aat act aca aat aat aat aat gct gct gct act cca     725
Gln Val Gln Val Asn Thr Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro
        140                 145                 150
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agg cac act att act tct gca act cag act gac ttt tca gaa gaa ata      773
Arg His Thr Ile Thr Ser Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile
155                     160                 165                 170

gac aac gat ctg cct caa agt aat gca aca cta cag gca cct ctc aag      821
Asp Asn Asp Leu Pro Gln Ser Asn Ala Thr Leu Gln Ala Pro Leu Lys
                    175                 180                 185

cct ctt cag cct ttc tca gca gtc tcg tct ggc aat ctt cca aca aat      869
Pro Leu Gln Pro Phe Ser Ala Val Ser Ser Gly Asn Leu Pro Thr Asn
                    190                 195                 200

gtg gca cct tta atc gtc ttt gat att tct gaa gaa ccg aat tgt cca      917
Val Ala Pro Leu Ile Val Phe Asp Ile Ser Glu Glu Pro Asn Cys Pro
            205                 210                 215

gaa aac ccc agt gct aca aga tgt cca gtg cca aaa cca aga tca aaa      965
Glu Asn Pro Ser Ala Thr Arg Cys Pro Val Pro Lys Pro Arg Ser Lys
        220                 225                 230

agc aac ctc aga cca ata ccc aga gat tct cac att aaa gag caa agt     1013
Ser Asn Leu Arg Pro Ile Pro Arg Asp Ser His Ile Lys Glu Gln Ser
235                 240                 245                 250

caa cag aaa atc agc cca gca gcc gta gga gag gag tca tcc cca ggc     1061
Gln Gln Lys Ile Ser Pro Ala Ala Val Gly Glu Glu Ser Ser Pro Gly
                    255                 260                 265

cgg ccc cag tct ctg ctg gac aac gct agc acc tca gac agt cag gca     1109
Arg Pro Gln Ser Leu Leu Asp Asn Ala Ser Thr Ser Asp Ser Gln Ala
                    270                 275                 280

gtg atg aac att atg aac aca gaa caa agc caa aat agt att gtt tcc     1157
Val Met Asn Ile Met Asn Thr Glu Gln Ser Gln Asn Ser Ile Val Ser
            285                 290                 295

aga att aaa gtg ttt gag ggt cag aca aac ata gaa acc tca gga ctg     1205
Arg Ile Lys Val Phe Glu Gly Gln Thr Asn Ile Glu Thr Ser Gly Leu
            300                 305                 310

ccc aag aaa cca gaa att act cca cgt tca ctt cct cca aag cct act     1253
Pro Lys Lys Pro Glu Ile Thr Pro Arg Ser Leu Pro Pro Lys Pro Thr
315                 320                 325                 330

gtt tcc tca ggg aaa cct tct gta gct ccc aaa cca gct gct aac aga     1301
Val Ser Ser Gly Lys Pro Ser Val Ala Pro Lys Pro Ala Ala Asn Arg
                335                 340                 345

gct tct gga gag tgg gac tct ggg act gag aac aga ctc aag gtg acc     1349
Ala Ser Gly Glu Trp Asp Ser Gly Thr Glu Asn Arg Leu Lys Val Thr
                350                 355                 360

tcc aag gaa gga ctc acc cca tac cct ccc ctg caa gaa gcg gga agc     1397
Ser Lys Glu Gly Leu Thr Pro Tyr Pro Pro Leu Gln Glu Ala Gly Ser
        365                 370                 375

atc cca gta acc aaa cct gaa ttg cca aag aaa cca aac cct ggc ctt     1445
Ile Pro Val Thr Lys Pro Glu Leu Pro Lys Lys Pro Asn Pro Gly Leu
        380                 385                 390

ata cga agt gtt aat cct gag att ccg gga aga ggg ccc ctg gct gag     1493
Ile Arg Ser Val Asn Pro Glu Ile Pro Gly Arg Gly Pro Leu Ala Glu
395                 400                 405                 410
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agc tct gat agt ggg aag aaa gtg cca act cct gcc ccg cgg cct ttg        1541
Ser Ser Asp Ser Gly Lys Lys Val Pro Thr Pro Ala Pro Arg Pro Leu
            415             420             425

ctg ctg aag aaa tct gtt tcc tca gaa aac ccc acc tac cct tca gct        1589
Leu Leu Lys Lys Ser Val Ser Ser Glu Asn Pro Thr Tyr Pro Ser Ala
            430             435             440

cca ctg aaa cct gtc act gtt cct ccc cga ctc gca ggg gca tca caa        1637
Pro Leu Lys Pro Val Thr Val Pro Pro Arg Leu Ala Gly Ala Ser Gln
            445             450             455

gcc aaa gca tac aag tca ctg gga gaa ggg ccc cca gcc aac ccc cca        1685
Ala Lys Ala Tyr Lys Ser Leu Gly Glu Gly Pro Pro Ala Asn Pro Pro
    460             465             470

gtt cca gtt ctg cag agc aag ccc ttg gtg gac atc gat ctc atc agc        1733
Val Pro Val Leu Gln Ser Lys Pro Leu Val Asp Ile Asp Leu Ile Ser
475             480             485             490

ttt gat gat gat gtt ttg ccc acc cca tcg ggg aac ctg gct gaa gaa        1781
Phe Asp Asp Asp Val Leu Pro Thr Pro Ser Gly Asn Leu Ala Glu Glu
            495             500             505

tct gtt ggt tca gag atg gtt cta gat ccc ttt cag ctc cct gca aaa        1829
Ser Val Gly Ser Glu Met Val Leu Asp Pro Phe Gln Leu Pro Ala Lys
            510             515             520

aca gaa cca ata aaa gaa cga gca gtt caa cca gca ccc acc agg aag        1877
Thr Glu Pro Ile Lys Glu Arg Ala Val Gln Pro Ala Pro Thr Arg Lys
            525             530             535

ccc act gta att cga att cca gcc aaa cca gga aaa tgt tta cat gag        1925
Pro Thr Val Ile Arg Ile Pro Ala Lys Pro Gly Lys Cys Leu His Glu
            540             545             550

gat cca caa agt cca cct cct ctc cct gct gaa aaa cct att gga aac        1973
Asp Pro Gln Ser Pro Pro Pro Leu Pro Ala Glu Lys Pro Ile Gly Asn
555             560             565             570

act ttc agt aca gta tct gga aag ctc agt aat gtt gag aga act aga        2021
Thr Phe Ser Thr Val Ser Gly Lys Leu Ser Asn Val Glu Arg Thr Arg
            575             580             585

aac ttg gaa tcc aac cac cca ggt caa aca gga ggt ttt gtg cga gta        2069
Asn Leu Glu Ser Asn His Pro Gly Gln Thr Gly Gly Phe Val Arg Val
            590             595             600

ccc cca agg ttg cca ccg aga cct gtg aat gga aaa acc att cca act        2117
Pro Pro Arg Leu Pro Pro Arg Pro Val Asn Gly Lys Thr Ile Pro Thr
            605             610             615

caa cag cct cca acc aag gtg ccc cct gag aga cca cct ccc cca aag        2165
Gln Gln Pro Pro Thr Lys Val Pro Pro Glu Arg Pro Pro Pro Pro Lys
            620             625             630

ctt tct gca acc aga aga tct aat aag aaa ctg cct ttt aat cga tcc        2213
Leu Ser Ala Thr Arg Arg Ser Asn Lys Lys Leu Pro Phe Asn Arg Ser
635             640             645             650

tct tct gac atg gat ctt cag aaa aaa caa agt aac ttg gca act gga        2261
Ser Ser Asp Met Asp Leu Gln Lys Lys Gln Ser Asn Leu Ala Thr Gly
            655             660             665
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ctc tca aaa gcc aag agt caa gtt ttt aaa aat caa gat ccg gtg cta    2309
Leu Ser Lys Ala Lys Ser Gln Val Phe Lys Asn Gln Asp Pro Val Leu
                670                 675                 680

ccc cct cgt ccc aaa cca gga cac cct ctc tac agt aaa tac atg ctg    2357
Pro Pro Arg Pro Lys Pro Gly His Pro Leu Tyr Ser Lys Tyr Met Leu
            685                 690                 695

tct gtg cct cat gga att gcc aat gaa gat att gtc tct caa aac ccc    2405
Ser Val Pro His Gly Ile Ala Asn Glu Asp Ile Val Ser Gln Asn Pro
    700                 705                 710

gga gaa ctc tct tgt aag cgt ggg gat gta ctt gtg atg ctg aag cag    2453
Gly Glu Leu Ser Cys Lys Arg Gly Asp Val Leu Val Met Leu Lys Gln
715                 720                 725                 730

acg gaa aat aat tac ttg gag tgc caa aag gga gaa gac act ggc aga    2501
Thr Glu Asn Asn Tyr Leu Glu Cys Gln Lys Gly Glu Asp Thr Gly Arg
                735                 740                 745

gtt cac ctg tct caa atg aag att atc act cca ctt gat gaa cat ctt    2549
Val His Leu Ser Gln Met Lys Ile Ile Thr Pro Leu Asp Glu His Leu
            750                 755                 760

aga agc aga cca aac gat cca agc cac gct cag aag cct gtt gac agt    2597
Arg Ser Arg Pro Asn Asp Pro Ser His Ala Gln Lys Pro Val Asp Ser
            765                 770                 775

ggt gct cct cat gct gtc gtt ctt cat gat ttc cca gca gag caa gtt    2645
Gly Ala Pro His Ala Val Val Leu His Asp Phe Pro Ala Glu Gln Val
    780                 785                 790

gat gat ttg aac ctc act tct gga gaa att gtt tat ctt ctg gag aag    2693
Asp Asp Leu Asn Leu Thr Ser Gly Glu Ile Val Tyr Leu Leu Glu Lys
795                 800                 805                 810

ata gat aca gat tgg tac aga ggg aac tgt aga aac cag att ggc ata    2741
Ile Asp Thr Asp Trp Tyr Arg Gly Asn Cys Arg Asn Gln Ile Gly Ile
                815                 820                 825

ttt cct gcc aac tat gtc aaa gtg att att gat atc cca gaa gga gga    2789
Phe Pro Ala Asn Tyr Val Lys Val Ile Ile Asp Ile Pro Glu Gly Gly
            830                 835                 840

aat ggg aaa aga gaa tgt gtt tca tct cat tgt gtt aaa ggc tca aga    2837
Asn Gly Lys Arg Glu Cys Val Ser Ser His Cys Val Lys Gly Ser Arg
            845                 850                 855

tgt gtt gct cgg ttt gaa tat att gga gag cag aag gat gag ttg agt    2885
Cys Val Ala Arg Phe Glu Tyr Ile Gly Glu Gln Lys Asp Glu Leu Ser
    860                 865                 870

ttc tca gag gga gaa att att att ctt aaa gag tat gtg aat gag gaa    2933
Phe Ser Glu Gly Glu Ile Ile Ile Leu Lys Glu Tyr Val Asn Glu Glu
875                 880                 885                 890

tgg gcc aga gga gaa gtt cga ggc aga act ggg att ttc ccc ctg aac    2981
Trp Ala Arg Gly Glu Val Arg Gly Arg Thr Gly Ile Phe Pro Leu Asn
                895                 900                 905

ttt gtg gag cct gtt gag gat tat ccc acc tct ggt gca aat gtt tta    3029
Phe Val Glu Pro Val Glu Asp Tyr Pro Thr Ser Gly Ala Asn Val Leu
            910                 915                 920
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agc aca aag gta cca ctg aaa acc aaa aaa gaa gat tct ggc tca aac      3077
Ser Thr Lys Val Pro Leu Lys Thr Lys Lys Glu Asp Ser Gly Ser Asn
         925                  930                  935

tct cag gtt aac agt ctt ccg gca gaa tgg tgt gaa gct ctt cac agt      3125
Ser Gln Val Asn Ser Leu Pro Ala Glu Trp Cys Glu Ala Leu His Ser
        940                  945                  950

ttt aca gca gag acc agt gat gac tta tca ttc aag agg gga gac cgg      3173
Phe Thr Ala Glu Thr Ser Asp Asp Leu Ser Phe Lys Arg Gly Asp Arg
955                  960                  965                  970

atc cag att ctg gaa cgt ctg gat tct gac tgg tgc agg ggc aga ctg      3221
Ile Gln Ile Leu Glu Arg Leu Asp Ser Asp Trp Cys Arg Gly Arg Leu
                 975                  980                  985

cag gac agg gag ggg atc ttc cca gca gtg ttt gtg agg ccc  tgc cca     3269
Gln Asp Arg Glu Gly Ile Phe Pro Ala Val Phe Val Arg Pro  Cys Pro
                 990                  995                  1000

gct gag gca  aaa agt atg ttg gcc  ata gta ccg aag ggg  agg aag        3314
Ala Glu Ala  Lys Ser Met Leu Ala  Ile Val Pro Lys Gly  Arg Lys
        1005                  1010                  1015

gcc aaa gcc  tta tat gat ttc cga  ggg gag aat gaa gat  gaa ctt        3359
Ala Lys Ala  Leu Tyr Asp Phe Arg  Gly Glu Asn Glu Asp  Glu Leu
        1020                  1025                  1030

tcc ttc aag  gct gga gat ata ata  aca gag ctg gaa tct  gta gat        3404
Ser Phe Lys  Ala Gly Asp Ile Ile  Thr Glu Leu Glu Ser  Val Asp
        1035                  1040                  1045

gat gac tgg  atg agt gga gaa ctt  atg gga aaa tct gga  ata ttt        3449
Asp Asp Trp  Met Ser Gly Glu Leu  Met Gly Lys Ser Gly  Ile Phe
        1050                  1055                  1060

ccc aaa aac  tac ata cag ttt cta  cag atc agc tagaggagaa            3492
Pro Lys Asn  Tyr Ile Gln Phe Leu  Gln Ile Ser
        1065                  1070

gcttgtctgt gttccttggc acaagaactc acttgaacta tcaccttgac tatcagatat    3552

gtttttgcac tatttttttt aactgaaaaa gaaatatcta agctgtacat ggtacactag    3612

aattttctga aagcagaaaa cgttcagatt ttgtagttaa ttttcattac aatagaaaca    3672

cgcacatgga aacccatgag ctaggattct accgaggaaa acatctagtg ggattagcaa    3732

ggtgaaggga aagcatctgg tggcatggca gcatggggag gctcacacac agaagttgca    3792

cgtggacatc tgttttaatc agcacaagtg aattaaccat gcttcttcat ttttttttact   3852

ttagttaaaa aagaggacat ttaatattct acatgctgta actatcagga catggttagc    3912

aatctcaatt tcatttttga tattcaaatt aattcttaca gcttgagcat atcagcctta    3972

ttaccagagc aaatccttcc ttcagatggg atagtttact gactagttgg agcatttgta    4032

agcacatggt gaaatcagcc cctgcccacc aaaataatct ttatgttacc aagtgattcc    4092

catttgtcta aggatttgaa gggggtctaa attggatgta tcttagtcta aagaaccaaa    4152

accatccctg aaatgccttg ctaatacaac taatccttcc atatatgtgc catacttatt    4212
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ttttttctca gtgtatactt tatgttaaca gggttattac aaagcacatt ttctgaatct   4272

gcaatcattc ctttgacaat tactggaccc aaaggaaaat tcattttctt tgcattattc   4332

cagtaatata taaaaactgt gtcttgttat agtagtacat tatgaatcac atataaaatc   4392

ttacaataca gaacaactgt taagatggaa aacagtgcca aacctccaca gctcatttct   4452

ttgtaatata atcagaatga aaaataattt aagaggacag aagactggta cttttttgtt   4512

ttatttttc tctagcttat ccctgcacaa ttattagagt gaatgaaaaa ccactttcct   4572

gctttccatt gttataaatt ctaagcttaa gataaaagtg gttctttaca tgactgaatc   4632

aattacaatt tatgggctag agccaaatag gttgaagaca atcatccaaa cagatcaatg   4692

gaatagaatt tcattggaaa tgtaaaacac tttcccaaca atggtcatga ctttcttctg   4752

tttttgagaa gagtttcata tgctggacca cattttagct tttattgttt ttttttccc   4812

attgtccaaa aagttaagca acaagtggcc acacttttac gtgactacaa cctggagttc   4872

tgcaaagaag gtaatattta cttggtcttt gactaaagtt atctccccat tctatggtta   4932

cattttattt tggactatgg ggacttctaa tacgttttgg taaagaagag agtataaaga   4992

aaattcttgt caaatttcac tcaaaagtaa tttcatgaga aatcaatgat ttaaagcatt   5052

atccaaatta aattatcatt tgcagcaaac tgtacaacag caggaaggat atggaatgga   5112

acatgaggta tatatctttg cctttataat tttaacatct tatattgaag attctgaaaa   5172

cctatcttta ttagaggaaa atctcaatct tcagttttgg ccttctgtca ccagaatgat   5232

aagtgcaata gttgtaaatc tacttgacac tgtaataaac tgaactgaac tttcaaaaaa   5292

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa                       5334
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<210> 22
<211> 1073
<212> PRT
<213> Homo sapiens

<400> 22

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Met Ala Glu Gly Arg Arg Arg Glu Asp Glu Glu Glu Leu Arg Glu
1               5                   10                  15


Arg Arg Glu Leu Gly Gly Gln Arg Arg Ala Arg Gly Arg Ala Leu Ser
            20                  25                  30


Gly His Ser Ala Ala Asp Arg Asn Glu Arg Asn Lys Pro Glu His Arg
        35                  40                  45


Ser Ser Ser Gln Gly Pro Leu Ser Ser Ile Arg Ala Val Ile Lys Arg
    50                  55                  60


Ser Ser Arg Thr Ser Ile Gln Ser Glu Leu His Arg Asp Arg Arg Arg
65                  70                  75                  80
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Pro Glu Ile Thr Ile Val Ala Ala Glu Pro Leu Arg Pro Ala Ser Trp
            85                      90                  95

Phe Pro Gly Thr Pro Pro Pro Gly Leu Gly Phe Pro Thr Ser Ser Ala
            100                     105             110

Ala Gly Ser Trp Arg Pro Asn Glu Leu Val Pro Ala Glu Leu Pro Pro
            115             120                 125

Ser Tyr Glu Gln Val Ile Lys Glu Ile Asn Gln Val Gln Val Asn Thr
            130             135                 140

Thr Asn Asn Asn Asn Ala Ala Ala Thr Pro Arg His Thr Ile Thr Ser
145                     150                 155                 160

Ala Thr Gln Thr Asp Phe Ser Glu Glu Ile Asp Asn Asp Leu Pro Gln
            165                     170             175

Ser Asn Ala Thr Leu Gln Ala Pro Leu Lys Pro Leu Gln Pro Phe Ser
            180                     185             190

Ala Val Ser Ser Gly Asn Leu Pro Thr Asn Val Ala Pro Leu Ile Val
            195                     200                 205

Phe Asp Ile Ser Glu Glu Pro Asn Cys Pro Glu Asn Pro Ser Ala Thr
210                     215                 220

Arg Cys Pro Val Pro Lys Pro Arg Ser Lys Ser Asn Leu Arg Pro Ile
225                 230                 235                 240

Pro Arg Asp Ser His Ile Lys Glu Gln Ser Gln Gln Lys Ile Ser Pro
            245                 250                 255

Ala Ala Val Gly Glu Glu Ser Ser Pro Gly Arg Pro Gln Ser Leu Leu
            260                 265                 270

Asp Asn Ala Ser Thr Ser Asp Ser Gln Ala Val Met Asn Ile Met Asn
            275                 280                 285

Thr Glu Gln Ser Gln Asn Ser Ile Val Ser Arg Ile Lys Val Phe Glu
            290                 295                 300

Gly Gln Thr Asn Ile Glu Thr Ser Gly Leu Pro Lys Lys Pro Glu Ile
305                 310                 315                 320

Thr Pro Arg Ser Leu Pro Pro Lys Pro Thr Val Ser Ser Gly Lys Pro
            325                 330                 335
```

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Ser Val Ala Pro Lys Pro Ala Ala Asn Arg Ala Ser Gly Glu Trp Asp
            340             345             350

Ser Gly Thr Glu Asn Arg Leu Lys Val Thr Ser Lys Glu Gly Leu Thr
            355             360             365

Pro Tyr Pro Pro Leu Gln Glu Ala Gly Ser Ile Pro Val Thr Lys Pro
    370             375             380

Glu Leu Pro Lys Lys Pro Asn Pro Gly Leu Ile Arg Ser Val Asn Pro
385             390             395             400

Glu Ile Pro Gly Arg Gly Pro Leu Ala Glu Ser Ser Asp Ser Gly Lys
                405             410             415

Lys Val Pro Thr Pro Ala Pro Arg Pro Leu Leu Leu Lys Lys Ser Val
            420             425             430

Ser Ser Glu Asn Pro Thr Tyr Pro Ser Ala Pro Leu Lys Pro Val Thr
            435             440             445

Val Pro Pro Arg Leu Ala Gly Ala Ser Gln Ala Lys Ala Tyr Lys Ser
    450             455             460

Leu Gly Glu Gly Pro Pro Ala Asn Pro Pro Val Pro Val Leu Gln Ser
465             470             475             480

Lys Pro Leu Val Asp Ile Asp Leu Ile Ser Phe Asp Asp Asp Val Leu
            485             490             495

Pro Thr Pro Ser Gly Asn Leu Ala Glu Glu Ser Val Gly Ser Glu Met
            500             505             510

Val Leu Asp Pro Phe Gln Leu Pro Ala Lys Thr Glu Pro Ile Lys Glu
            515             520             525

Arg Ala Val Gln Pro Ala Pro Thr Arg Lys Pro Thr Val Ile Arg Ile
    530             535             540

Pro Ala Lys Pro Gly Lys Cys Leu His Glu Asp Pro Gln Ser Pro Pro
545             550             555             560

Pro Leu Pro Ala Glu Lys Pro Ile Gly Asn Thr Phe Ser Thr Val Ser
            565             570             575

Gly Lys Leu Ser Asn Val Glu Arg Thr Arg Asn Leu Glu Ser Asn His
            580             585             590
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Pro Gly Gln Thr Gly Gly Phe Val Arg Val Pro Pro Arg Leu Pro Pro
    595                 600                 605

Arg Pro Val Asn Gly Lys Thr Ile Pro Thr Gln Gln Pro Pro Thr Lys
    610                 615                 620

Val Pro Pro Glu Arg Pro Pro Pro Lys Leu Ser Ala Thr Arg Arg
625                 630                 635                 640

Ser Asn Lys Lys Leu Pro Phe Asn Arg Ser Ser Ser Asp Met Asp Leu
                645                 650                 655

Gln Lys Lys Gln Ser Asn Leu Ala Thr Gly Leu Ser Lys Ala Lys Ser
                660                 665                 670

Gln Val Phe Lys Asn Gln Asp Pro Val Leu Pro Pro Arg Pro Lys Pro
        675                 680                 685

Gly His Pro Leu Tyr Ser Lys Tyr Met Leu Ser Val Pro His Gly Ile
    690                 695                 700

Ala Asn Glu Asp Ile Val Ser Gln Asn Pro Gly Glu Leu Ser Cys Lys
705                 710                 715                 720

Arg Gly Asp Val Leu Val Met Leu Lys Gln Thr Glu Asn Asn Tyr Leu
                725                 730                 735

Glu Cys Gln Lys Gly Glu Asp Thr Gly Arg Val His Leu Ser Gln Met
            740                 745                 750

Lys Ile Ile Thr Pro Leu Asp Glu His Leu Arg Ser Arg Pro Asn Asp
        755                 760                 765

Pro Ser His Ala Gln Lys Pro Val Asp Ser Gly Ala Pro His Ala Val
    770                 775                 780

Val Leu His Asp Phe Pro Ala Glu Gln Val Asp Asp Leu Asn Leu Thr
785                 790                 795                 800

Ser Gly Glu Ile Val Tyr Leu Leu Glu Lys Ile Asp Thr Asp Trp Tyr
                805                 810                 815

Arg Gly Asn Cys Arg Asn Gln Ile Gly Ile Phe Pro Ala Asn Tyr Val
            820                 825                 830

Lys Val Ile Ile Asp Ile Pro Glu Gly Gly Asn Gly Lys Arg Glu Cys
    835                 840                 845
```

Val Ser Ser His Cys Val Lys Gly Ser Arg Cys Val Ala Arg Phe Glu
    850   855   860

Tyr Ile Gly Glu Gln Lys Asp Glu Leu Ser Phe Ser Glu Gly Glu Ile
865   870   875   880

Ile Ile Leu Lys Glu Tyr Val Asn Glu Glu Trp Ala Arg Gly Glu Val
            885   890   895

Arg Gly Arg Thr Gly Ile Phe Pro Leu Asn Phe Val Glu Pro Val Glu
            900   905   910

Asp Tyr Pro Thr Ser Gly Ala Asn Val Leu Ser Thr Lys Val Pro Leu
        915   920   925

Lys Thr Lys Lys Glu Asp Ser Gly Ser Asn Ser Gln Val Asn Ser Leu
    930   935   940

Pro Ala Glu Trp Cys Glu Ala Leu His Ser Phe Thr Ala Glu Thr Ser
945   950   955   960

Asp Asp Leu Ser Phe Lys Arg Gly Asp Arg Ile Gln Ile Leu Glu Arg
            965   970   975

Leu Asp Ser Asp Trp Cys Arg Gly Arg Leu Gln Asp Arg Glu Gly Ile
        980   985   990

Phe Pro Ala Val Phe Val Arg Pro Cys Pro Ala Glu Ala Lys Ser Met
        995   1000   1005

Leu Ala Ile Val Pro Lys Gly Arg Lys Ala Lys Ala Leu Tyr Asp
    1010   1015   1020

Phe Arg Gly Glu Asn Glu Asp Glu Leu Ser Phe Lys Ala Gly Asp
    1025   1030   1035

Ile Ile Thr Glu Leu Glu Ser Val Asp Asp Asp Trp Met Ser Gly
    1040   1045   1050

Glu Leu Met Gly Lys Ser Gly Ile Phe Pro Lys Asn Tyr Ile Gln
    1055   1060   1065

Phe Leu Gln Ile Ser
    1070

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<211> 5228

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tcctctcttc tcctgtgtca tggagtgtag aggaaataaa atcatgtctg tggctcatga   120

cagcattcca tattcagttg ttgggttgtg ttgttgttgt tgtgtgtgtt tttaataata   180

ccatgtaact gtttaaaaaa atttcctttt tgatcaagtc ccaaatctgc cagcctgttc   240

tctcttccta actgtggaaa aatgagacgg ttgcttgaac atttgttggc ttggctgaag   300

aggaaataaa aacagaacag gaggtggtag aggc atg gat atc tct act cgc   353
                                      Met Asp Ile Ser Thr Arg
                                      1   5

tcc aaa gat cct ggc tct gca gag aga aca gcc cag aaa aga aag ttc   401
Ser Lys Asp Pro Gly Ser Ala Glu Arg Thr Ala Gln Lys Arg Lys Phe
            10   15   20

ccc agc cct cca cat tct tcc aat ggc cac tcg ccg cag gac aca tca   449
Pro Ser Pro Pro His Ser Ser Asn Gly His Ser Pro Gln Asp Thr Ser
            25   30   35

aca agc ccc att aaa aag aaa aag aaa cct ggc tta ctg aac agt aac   497
Thr Ser Pro Ile Lys Lys Lys Lys Lys Pro Gly Leu Leu Asn Ser Asn
        40   45   50

aat aag gag cag tca gaa cta aga cat ggt ccg ttt tac tat atg aag   545
Asn Lys Glu Gln Ser Glu Leu Arg His Gly Pro Phe Tyr Tyr Met Lys
55   60   65   70

cag cca ctc acc aca gac cct gtt gat gtt gta ccg cag gat gga cgg   593
Gln Pro Leu Thr Thr Asp Pro Val Asp Val Val Pro Gln Asp Gly Arg
                75   80   85

aat gat ttc tac tgc tgg gtt tgt cac cgg gaa ggc caa gtc ctt tgc   641
Asn Asp Phe Tyr Cys Trp Val Cys His Arg Glu Gly Gln Val Leu Cys
            90   95   100

tgt gag ctc tgt ccc cgg gtt tat cac gct aag tgt ctg aga ctg aca   689
Cys Glu Leu Cys Pro Arg Val Tyr His Ala Lys Cys Leu Arg Leu Thr
            105   110   115

tcg gaa cca gag ggg gac tgg ttt tgt cct gaa tgt gag aaa att aca   737
Ser Glu Pro Glu Gly Asp Trp Phe Cys Pro Glu Cys Glu Lys Ile Thr
            120   125   130

gta gca gaa tgc atc gag acc cag agt aaa gcc atg aca atg ctc acc   785
Val Ala Glu Cys Ile Glu Thr Gln Ser Lys Ala Met Thr Met Leu Thr
135   140   145   150

att gaa cag tta tcc tac ctg ctc aag ttt gcc att cag aaa atg aaa   833
Ile Glu Gln Leu Ser Tyr Leu Leu Lys Phe Ala Ile Gln Lys Met Lys
                155   160   165

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cag cca ggg aca gat gca ttc cag aag ccc gtt cca ttg gaa cag cac        881
Gln Pro Gly Thr Asp Ala Phe Gln Lys Pro Val Pro Leu Glu Gln His
            170             175             180

cct gac tat gcg gaa tac atc ttc cat cca atg gac ctt tgt aca ttg        929
Pro Asp Tyr Ala Glu Tyr Ile Phe His Pro Met Asp Leu Cys Thr Leu
            185             190             195

gaa aag aat gcg aaa aag aaa atg tat ggc tgc aca gaa gcc ttc ctg        977
Glu Lys Asn Ala Lys Lys Lys Met Tyr Gly Cys Thr Glu Ala Phe Leu
    200             205             210

gct gat gca aag tgg att ttg cac aac tgc atc att tat aat ggg gga       1025
Ala Asp Ala Lys Trp Ile Leu His Asn Cys Ile Ile Tyr Asn Gly Gly
215             220             225             230

aat cac aaa ttg acg caa ata gcg aaa gta gtc atc aaa atc tgt gaa       1073
Asn His Lys Leu Thr Gln Ile Ala Lys Val Val Ile Lys Ile Cys Glu
            235             240             245

cat gag atg aat gaa atc gaa gta tgt cca gaa tgt tat cta gct gct       1121
His Glu Met Asn Glu Ile Glu Val Cys Pro Glu Cys Tyr Leu Ala Ala
            250             255             260

tgc caa aaa cga gat aac tgg ttt tgt gag cct tgt agc aat cca cat       1169
Cys Gln Lys Arg Asp Asn Trp Phe Cys Glu Pro Cys Ser Asn Pro His
    265             270             275

cct ttg gtc tgg gcc aaa ctg aag ggg ttt cca ttc tgg cct gca aaa       1217
Pro Leu Val Trp Ala Lys Leu Lys Gly Phe Pro Phe Trp Pro Ala Lys
    280             285             290

gct cta agg gat aaa gac ggg cag gtc gat gcc cga ttc ttt gga caa       1265
Ala Leu Arg Asp Lys Asp Gly Gln Val Asp Ala Arg Phe Phe Gly Gln
295             300             305             310

cat gac agg gcc tgg gtt cca ata aat aat tgc tac ctc atg tct aaa       1313
His Asp Arg Ala Trp Val Pro Ile Asn Asn Cys Tyr Leu Met Ser Lys
            315             320             325

gaa att cct ttt tct gtg aaa aag act aag agc atc ttc aac agt gcc       1361
Glu Ile Pro Phe Ser Val Lys Lys Thr Lys Ser Ile Phe Asn Ser Ala
            330             335             340

atg caa gag atg gag gtt tac gtg gag aac atc cgc agg aag ttt ggg       1409
Met Gln Glu Met Glu Val Tyr Val Glu Asn Ile Arg Arg Lys Phe Gly
    345             350             355

gtt ttt aat tac tct cca ttt agg aca ccc tac aca ccc aac agc cag       1457
Val Phe Asn Tyr Ser Pro Phe Arg Thr Pro Tyr Thr Pro Asn Ser Gln
    360             365             370

tat caa atg ctg ctc gat ccc acc aac ccc agc gcc ggc act gcc aag       1505
Tyr Gln Met Leu Leu Asp Pro Thr Asn Pro Ser Ala Gly Thr Ala Lys
375             380             385             390

ata gac aag cag gag aag gtc aag ctc aac ttt gac atg acg gca tcc       1553
Ile Asp Lys Gln Glu Lys Val Lys Leu Asn Phe Asp Met Thr Ala Ser
            395             400             405

ccc aag atc ctg atg agc aag cct gtg ctg agt ggg ggc aca ggc cgc       1601
Pro Lys Ile Leu Met Ser Lys Pro Val Leu Ser Gly Gly Thr Gly Arg
            410             415             420
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cgg att tcc ttg tcg gat atg ccg cgc tcc ccc atg agc aca aac tct        1649
Arg Ile Ser Leu Ser Asp Met Pro Arg Ser Pro Met Ser Thr Asn Ser
        425             430             435

tct gtg cac acg ggc tcc gac gtg gag cag gat gct gag aag aag gcc        1697
Ser Val His Thr Gly Ser Asp Val Glu Gln Asp Ala Glu Lys Lys Ala
    440             445             450

acg tcg agc cac ttc agt gcg agc gag gag tcc atg gac ttc ctg gat        1745
Thr Ser Ser His Phe Ser Ala Ser Glu Glu Ser Met Asp Phe Leu Asp
455             460             465             470

aag agc aca gct tca cca gcc tcc acc aag acg gga caa gca ggg agt        1793
Lys Ser Thr Ala Ser Pro Ala Ser Thr Lys Thr Gly Gln Ala Gly Ser
            475             480             485

tta tcc ggc agc cca aag ccc ttc tct cct caa ctg tca gct cct atc        1841
Leu Ser Gly Ser Pro Lys Pro Phe Ser Pro Gln Leu Ser Ala Pro Ile
            490             495             500

acg acg aaa acg gac aaa acc tcc acc acc ggc agc atc ctg aat ctt        1889
Thr Thr Lys Thr Asp Lys Thr Ser Thr Thr Gly Ser Ile Leu Asn Leu
        505             510             515

aac ctg gat cga agc aaa gct gag atg gat ttg aag gag ctg agc gag        1937
Asn Leu Asp Arg Ser Lys Ala Glu Met Asp Leu Lys Glu Leu Ser Glu
    520             525             530

tcg gtc cag caa cag tcc acc cct gtt cct ctc atc tct ccc aag cgc        1985
Ser Val Gln Gln Gln Ser Thr Pro Val Pro Leu Ile Ser Pro Lys Arg
535             540             545             550

cag att cgt agc agg ttc cag ctg aat ctt gac aag acc ata gag agt        2033
Gln Ile Arg Ser Arg Phe Gln Leu Asn Leu Asp Lys Thr Ile Glu Ser
            555             560             565

tgc aaa gca caa tta ggc ata aat gaa atc tcg gaa gat gtc tat acg        2081
Cys Lys Ala Gln Leu Gly Ile Asn Glu Ile Ser Glu Asp Val Tyr Thr
            570             575             580

gcc gta gag cac agc gat tcg gag gat tct gag aag tca gat agt agc        2129
Ala Val Glu His Ser Asp Ser Glu Asp Ser Glu Lys Ser Asp Ser Ser
        585             590             595

gat agt gag tat atc agt gat gat gag cag aag tct aag aac gag cca        2177
Asp Ser Glu Tyr Ile Ser Asp Asp Glu Gln Lys Ser Lys Asn Glu Pro
        600             605             610

gaa gac aca gag gac aaa gaa ggt tgt cag atg gac aaa gag cca tct        2225
Glu Asp Thr Glu Asp Lys Glu Gly Cys Gln Met Asp Lys Glu Pro Ser
615             620             625             630

gct gtt aaa aaa aag ccc aag cct aca aac cca gtg gag att aaa gag        2273
Ala Val Lys Lys Lys Pro Lys Pro Thr Asn Pro Val Glu Ile Lys Glu
            635             640             645

gag ctg aaa agc acg tca cca gcc agc gag aag gca gac cct gga gca        2321
Glu Leu Lys Ser Thr Ser Pro Ala Ser Glu Lys Ala Asp Pro Gly Ala
            650             655             660

gtc aag gac aag gcc agc cct gag cct gag aag gac ttt tcc gaa aag        2369
Val Lys Asp Lys Ala Ser Pro Glu Pro Glu Lys Asp Phe Ser Glu Lys
        665             670             675
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gca aaa cct tca cct cac ccc ata aag gat aaa ctg aag gga aaa gat        2417
Ala Lys Pro Ser Pro His Pro Ile Lys Asp Lys Leu Lys Gly Lys Asp
    680                     685                 690

gag acg gat tcc cca aca gtc cat ttg ggc ctg gac tct gat tca gag        2465
Glu Thr Asp Ser Pro Thr Val His Leu Gly Leu Asp Ser Asp Ser Glu
695                     700                 705                 710

agc gaa ctt gtc ata gat tta gga gaa gac cat tct ggg cgg gag ggt        2513
Ser Glu Leu Val Ile Asp Leu Gly Glu Asp His Ser Gly Arg Glu Gly
                715                 720                 725

cga aaa aat aag aag gaa ccc aaa gaa cca tct ccc aaa cag gat gtt        2561
Arg Lys Asn Lys Lys Glu Pro Lys Glu Pro Ser Pro Lys Gln Asp Val
            730                 735                 740

gta ggt aaa act cca cca tcc acg acg gtg ggc agc cat tct ccc ccg        2609
Val Gly Lys Thr Pro Pro Ser Thr Thr Val Gly Ser His Ser Pro Pro
        745                 750                 755

gaa aca ccg gtg ctc acc cgc tct tcc gcc caa act tcc gcg gct ggc        2657
Glu Thr Pro Val Leu Thr Arg Ser Ser Ala Gln Thr Ser Ala Ala Gly
    760                 765                 770

gcc aca gcc acc acc agc acg tcc tcc acg gtc acc gtc acg gcc ccg        2705
Ala Thr Ala Thr Thr Ser Thr Ser Ser Thr Val Thr Val Thr Ala Pro
775                 780                 785                 790

gcc ccc gcc gcc aca gga agc cca gtg aaa aag cag agg ccg ctt tta        2753
Ala Pro Ala Ala Thr Gly Ser Pro Val Lys Lys Gln Arg Pro Leu Leu
                795                 800                 805

ccg aag gag act gcc ccg gcc gtg cag cgg gtc gtg tgg aac tca tca        2801
Pro Lys Glu Thr Ala Pro Ala Val Gln Arg Val Val Trp Asn Ser Ser
            810                 815                 820

agt aag ttt caa acg tcc tcc caa aag tgg cac atg cag aag atg cag        2849
Ser Lys Phe Gln Thr Ser Ser Gln Lys Trp His Met Gln Lys Met Gln
        825                 830                 835

cgt cag cag cag cag cag cag cag caa aac cag cag cag cag cct cag        2897
Arg Gln Gln Gln Gln Gln Gln Gln Asn Gln Gln Gln Gln Pro Gln
    840                 845                 850

tct tcc cag ggg acg aga tat cag acc aga cag gct gtg aaa gct gtc        2945
Ser Ser Gln Gly Thr Arg Tyr Gln Thr Arg Gln Ala Val Lys Ala Val
855                 860                 865                 870

cag cag aag gag atc aca cag agc cca tcc acg tcc acc atc acc ctg        2993
Gln Gln Lys Glu Ile Thr Gln Ser Pro Ser Thr Ser Thr Ile Thr Leu
                875                 880                 885

gtg acc agc aca cag tca tcg ccc ctg gtc acc agc tcg ggg tcc atg        3041
Val Thr Ser Thr Gln Ser Ser Pro Leu Val Thr Ser Ser Gly Ser Met
                890                 895                 900

agc acc ctt gtg tcc tca gtc aac gct gac ctg ccc atc gcc act gcc        3089
Ser Thr Leu Val Ser Ser Val Asn Ala Asp Leu Pro Ile Ala Thr Ala
        905                 910                 915

tca gct gat gtc gcc gct gat att gcc aag tac act agc aaa atg atg        3137
Ser Ala Asp Val Ala Ala Asp Ile Ala Lys Tyr Thr Ser Lys Met Met
    920                 925                 930
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gat gca ata aaa gga aca atg aca gaa ata tac aac gat ctt tct aaa        3185
Asp Ala Ile Lys Gly Thr Met Thr Glu Ile Tyr Asn Asp Leu Ser Lys
935                 940                 945                 950

aac act act gga agc aca ata gct gag att cgc agg ctg agg atc gag        3233
Asn Thr Thr Gly Ser Thr Ile Ala Glu Ile Arg Arg Leu Arg Ile Glu
                955                 960                 965

ata gag aag ctc cag tgg ctg cac cag caa gag ctc tcc gaa atg aaa        3281
Ile Glu Lys Leu Gln Trp Leu His Gln Gln Glu Leu Ser Glu Met Lys
            970                 975                 980

cac aac tta gag ctg acc atg gcg gag atg cgg cag agc ctg gag cag        3329
His Asn Leu Glu Leu Thr Met Ala Glu Met Arg Gln Ser Leu Glu Gln
        985                 990                 995

gag cgg  gac cgg ctc atc gcc  gag gtg aag aag cag  ctg gag ttg         3374
Glu Arg  Asp Arg Leu Ile Ala  Glu Val Lys Lys Gln  Leu Glu Leu
        1000             1005             1010

gag aag  cag cag gcg gtg gat  gag acc aag aag aag  cag tgg tgc         3419
Glu Lys  Gln Gln Ala Val Asp  Glu Thr Lys Lys Lys  Gln Trp Cys
        1015             1020             1025

gcc aac  tgc aag aag gag gcc  atc ttt tac tgc tgt  tgg aac acc         3464
Ala Asn  Cys Lys Lys Glu Ala  Ile Phe Tyr Cys Cys  Trp Asn Thr
        1030             1035             1040

agc tac  tgt gac tac ccc tgc  cag caa gcc cac tgg  cct gag cac         3509
Ser Tyr  Cys Asp Tyr Pro Cys  Gln Gln Ala His Trp  Pro Glu His
        1045             1050             1055

atg aag  tcc tgc acc cag tca  gct act gct cct cag  cag gaa gcg         3554
Met Lys  Ser Cys Thr Gln Ser  Ala Thr Ala Pro Gln  Gln Glu Ala
        1060             1065             1070

gat gct  gag gtg aac aca gaa  aca cta aat aag tcc  tcc cag ggg         3599
Asp Ala  Glu Val Asn Thr Glu  Thr Leu Asn Lys Ser  Ser Gln Gly
        1075             1080             1085

agc tcc  tcg agc aca caa tca  gca cct tca gaa acg  gcc agc gcc         3644
Ser Ser  Ser Ser Thr Gln Ser  Ala Pro Ser Glu Thr  Ala Ser Ala
        1090             1095             1100

tcc aaa  gag aag gag acg tca  gct gag aaa agc aag  gag agt ggc         3689
Ser Lys  Glu Lys Glu Thr Ser  Ala Glu Lys Ser Lys  Glu Ser Gly
        1105             1110             1115

tcg acc  ctt gac ctt tct ggc  tcc aga gag acg ccc  tcc tcc att         3734
Ser Thr  Leu Asp Leu Ser Gly  Ser Arg Glu Thr Pro  Ser Ser Ile
        1120             1125             1130

ctc tta  ggc tcc aac caa ggc  tct gtt agc aaa agg  tgt gac aag         3779
Leu Leu  Gly Ser Asn Gln Gly  Ser Val Ser Lys Arg  Cys Asp Lys
        1135             1140             1145

caa cct  gcc tat gcc cca acc  acc aca gac cac cag  ccg cac ccc         3824
Gln Pro  Ala Tyr Ala Pro Thr  Thr Thr Asp His Gln  Pro His Pro
        1150             1155             1160

aac tac  ccc gcc cag aag tac  cat tcc cgg agt aat  aaa tcc agt         3869
Asn Tyr  Pro Ala Gln Lys Tyr  His Ser Arg Ser Asn  Lys Ser Ser
        1165             1170             1175
```

```
tgg agc  agc agt gat gag  aag  agg gga tcg aca cgt  tcc gat cac        3914
Trp Ser  Ser Ser Asp Glu  Lys  Arg Gly Ser Thr Arg  Ser Asp His
    1180             1185              1190

aac acc  agt acc agc acg aag  agc ctc ctc ccg aaa  gag tct cgg        3959
Asn Thr  Ser Thr Ser Thr Lys  Ser Leu Leu Pro Lys  Glu Ser Arg
    1195             1200             1205

ctg gac  acc ttc tgg gac tagcagtgaa tcgggacaca aaccacccac            4007
Leu Asp  Thr Phe Trp Asp
    1210

cccattggga gaaaaaccca gacgccagga aaagaagaaa caacaaaggc aggagaacag    4067

ccactttcag acttgaaaat gacaaaaccc tcagttgagc ctgagccccc ggcgcggggg    4127

ctgctacact acaggacacc cagcatcggc tttgactgca gactgttcac ccacacgagc    4187

cctgtgcttt tggtgtaaat aatgtacaat ttgtggatgt cattgaatct agaggacttt    4247

cccctttttta tatttgtatt aactttaact tattaaaaaa aaaaaaagaa aaagaaaaac    4307

gatttaaaaa aaaaaaaaaa aagcaaccaa ccccaacaac aaaaaagaat gttttggtat    4367

tggagaaggg atggtcagtt agcctgtctg tcacacgacg gaatggatac tgggcccggg    4427

gaccactttc atactcacgt cctcatcctt ggatacccag gggagggcga accgttttcg    4487

ctcgtgtgtc tgtacgcagc atgttgggat cgggagtttc ggcacagact atcccatcaa    4547

gccgttggct cctttcagct actacgttac cacgttccta aaacgcaagc tctccggacc    4607

agacggacac agggagaagc tagtttcttt catgtgattg aaatgatgac tctactccta    4667

aaagggaaaa aacaatatcc ttgtttacag aagagaaaca aacaagcccc actcagctca    4727

gtcacaggag agaacacaga aagtcttagg atcatgaact ctgaaaaaaa gagaaacctt    4787

atctttgctt tgtggttcct ttaaacacac tcacacacac ttggtcagag atgctgtgct    4847

tcttggaagc aaggactcaa aggcaaggtg cacgcagagg acgtttgagt ctgggatgaa    4907

gcatgtacgt attatttata tgatggaatt tcacgttttt atgtaagcat gaaacacagg    4967

cagtatgaga gaaagcaagg cccgtcatgc tgtccgtaca ctacgtatgc ttgtagagcc    5027

attttgtatg ttgtgtaaaa caaaaagcat tgatgaaaaa gcaaaggtg atgtatgtat      5087

atgagaaaat taattgtacg atatcattcc agtacgtttt gttgtacatt ttagtcttgt    5147

ttactttctc ttcattgtta agaggatgcg aactgtacag tttccagcta gttacccata    5207

ttagagaaga aataagagag t                                              5228


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<212>   PRT
<213>   Homo sapiens

<400>   24

Met Asp Ile Ser Thr Arg Ser Lys Asp Pro Gly Ser Ala Glu Arg Thr
1               5                   10                  15
```

Ala Gln Lys Arg Lys Phe Pro Ser Pro Pro His Ser Ser Asn Gly His
            20   25   30

Ser Pro Gln Asp Thr Ser Thr Ser Pro Ile Lys Lys Lys Lys Lys Pro
            35   40   45

Gly Leu Leu Asn Ser Asn Asn Lys Glu Gln Ser Glu Leu Arg His Gly
        50   55   60

Pro Phe Tyr Tyr Met Lys Gln Pro Leu Thr Thr Asp Pro Val Asp Val
65   70   75   80

Val Pro Gln Asp Gly Arg Asn Asp Phe Tyr Cys Trp Val Cys His Arg
                85   90   95

Glu Gly Gln Val Leu Cys Cys Glu Leu Cys Pro Arg Val Tyr His Ala
            100   105   110

Lys Cys Leu Arg Leu Thr Ser Glu Pro Glu Gly Asp Trp Phe Cys Pro
            115   120   125

Glu Cys Glu Lys Ile Thr Val Ala Glu Cys Ile Glu Thr Gln Ser Lys
    130   135   140

Ala Met Thr Met Leu Thr Ile Glu Gln Leu Ser Tyr Leu Leu Lys Phe
145   150   155   160

Ala Ile Gln Lys Met Lys Gln Pro Gly Thr Asp Ala Phe Gln Lys Pro
                165   170   175

Val Pro Leu Glu Gln His Pro Asp Tyr Ala Glu Tyr Ile Phe His Pro
            180   185   190

Met Asp Leu Cys Thr Leu Glu Lys Asn Ala Lys Lys Lys Met Tyr Gly
            195   200   205

Cys Thr Glu Ala Phe Leu Ala Asp Ala Lys Trp Ile Leu His Asn Cys
    210   215   220

Ile Ile Tyr Asn Gly Gly Asn His Lys Leu Thr Gln Ile Ala Lys Val
225   230   235   240

Val Ile Lys Ile Cys Glu His Glu Met Asn Glu Ile Glu Val Cys Pro
                245   250   255

Glu Cys Tyr Leu Ala Ala Cys Gln Lys Arg Asp Asn Trp Phe Cys Glu
            260   265   270

```
Pro Cys Ser Asn Pro His Pro Leu Val Trp Ala Lys Leu Lys Gly Phe
    275                 280                 285

Pro Phe Trp Pro Ala Lys Ala Leu Arg Asp Lys Asp Gly Gln Val Asp
    290                 295                 300

Ala Arg Phe Phe Gly Gln His Asp Arg Ala Trp Val Pro Ile Asn Asn
305                 310                 315                 320

Cys Tyr Leu Met Ser Lys Glu Ile Pro Phe Ser Val Lys Lys Thr Lys
                325                 330                 335

Ser Ile Phe Asn Ser Ala Met Gln Glu Met Glu Val Tyr Val Glu Asn
                340                 345                 350

Ile Arg Arg Lys Phe Gly Val Phe Asn Tyr Ser Pro Phe Arg Thr Pro
            355                 360                 365

Tyr Thr Pro Asn Ser Gln Tyr Gln Met Leu Leu Asp Pro Thr Asn Pro
    370                 375                 380

Ser Ala Gly Thr Ala Lys Ile Asp Lys Gln Glu Lys Val Lys Leu Asn
385                 390                 395                 400

Phe Asp Met Thr Ala Ser Pro Lys Ile Leu Met Ser Lys Pro Val Leu
                405                 410                 415

Ser Gly Gly Thr Gly Arg Arg Ile Ser Leu Ser Asp Met Pro Arg Ser
                420                 425                 430

Pro Met Ser Thr Asn Ser Ser Val His Thr Gly Ser Asp Val Glu Gln
                435                 440                 445

Asp Ala Glu Lys Lys Ala Thr Ser Ser His Phe Ser Ala Ser Glu Glu
    450                 455                 460

Ser Met Asp Phe Leu Asp Lys Ser Thr Ala Ser Pro Ala Ser Thr Lys
465                 470                 475                 480

Thr Gly Gln Ala Gly Ser Leu Ser Gly Ser Pro Lys Pro Phe Ser Pro
                485                 490                 495

Gln Leu Ser Ala Pro Ile Thr Thr Lys Thr Asp Lys Thr Ser Thr Thr
                500                 505                 510

Gly Ser Ile Leu Asn Leu Asn Leu Asp Arg Ser Lys Ala Glu Met Asp
            515                 520                 525
```

```
Leu Lys Glu Leu Ser Glu Ser Val Gln Gln Gln Ser Thr Pro Val Pro
    530                 535                 540

Leu Ile Ser Pro Lys Arg Gln Ile Arg Ser Arg Phe Gln Leu Asn Leu
545                 550                 555                 560

Asp Lys Thr Ile Glu Ser Cys Lys Ala Gln Leu Gly Ile Asn Glu Ile
                565                 570                 575

Ser Glu Asp Val Tyr Thr Ala Val Glu His Ser Asp Ser Glu Asp Ser
                580                 585                 590

Glu Lys Ser Asp Ser Ser Asp Ser Glu Tyr Ile Ser Asp Asp Glu Gln
        595                 600                 605

Lys Ser Lys Asn Glu Pro Glu Asp Thr Glu Asp Lys Glu Gly Cys Gln
    610                 615                 620

Met Asp Lys Glu Pro Ser Ala Val Lys Lys Lys Pro Lys Pro Thr Asn
625                 630                 635                 640

Pro Val Glu Ile Lys Glu Glu Leu Lys Ser Thr Ser Pro Ala Ser Glu
                645                 650                 655

Lys Ala Asp Pro Gly Ala Val Lys Asp Lys Ala Ser Pro Glu Pro Glu
            660                 665                 670

Lys Asp Phe Ser Glu Lys Ala Lys Pro Ser Pro His Pro Ile Lys Asp
        675                 680                 685

Lys Leu Lys Gly Lys Asp Glu Thr Asp Ser Pro Thr Val His Leu Gly
    690                 695                 700

Leu Asp Ser Asp Ser Glu Ser Glu Leu Val Ile Asp Leu Gly Glu Asp
705                 710                 715                 720

His Ser Gly Arg Glu Gly Arg Lys Asn Lys Lys Glu Pro Lys Glu Pro
                725                 730                 735

Ser Pro Lys Gln Asp Val Val Gly Lys Thr Pro Pro Ser Thr Thr Val
            740                 745                 750

Gly Ser His Ser Pro Pro Glu Thr Pro Val Leu Thr Arg Ser Ser Ala
        755                 760                 765

Gln Thr Ser Ala Ala Gly Ala Thr Ala Thr Thr Ser Thr Ser Ser Thr
    770                 775                 780
```

```
Val Thr Val Thr Ala Pro Ala Pro Ala Ala Thr Gly Ser Pro Val Lys
785             790         795             800

Lys Gln Arg Pro Leu Leu Pro Lys Glu Thr Ala Pro Ala Val Gln Arg
            805             810             815

Val Val Trp Asn Ser Ser Ser Lys Phe Gln Thr Ser Ser Gln Lys Trp
            820             825             830

His Met Gln Lys Met Gln Arg Gln Gln Gln Gln Gln Gln Gln Gln Asn
        835             840             845

Gln Gln Gln Gln Pro Gln Ser Ser Gln Gly Thr Arg Tyr Gln Thr Arg
    850             855             860

Gln Ala Val Lys Ala Val Gln Gln Lys Glu Ile Thr Gln Ser Pro Ser
865             870             875             880

Thr Ser Thr Ile Thr Leu Val Thr Ser Thr Gln Ser Ser Pro Leu Val
            885             890             895

Thr Ser Ser Gly Ser Met Ser Thr Leu Val Ser Ser Val Asn Ala Asp
        900             905             910

Leu Pro Ile Ala Thr Ala Ser Ala Asp Val Ala Ala Asp Ile Ala Lys
    915             920             925

Tyr Thr Ser Lys Met Met Asp Ala Ile Lys Gly Thr Met Thr Glu Ile
    930             935             940

Tyr Asn Asp Leu Ser Lys Asn Thr Thr Gly Ser Thr Ile Ala Glu Ile
945             950             955             960

Arg Arg Leu Arg Ile Glu Ile Glu Lys Leu Gln Trp Leu His Gln Gln
            965             970             975

Glu Leu Ser Glu Met Lys His Asn Leu Glu Leu Thr Met Ala Glu Met
        980             985             990

Arg Gln Ser Leu Glu Gln Glu Arg Asp Arg Leu Ile Ala Glu Val Lys
    995             1000            1005

Lys Gln Leu Glu Leu Glu Lys Gln Gln Ala Val Asp Glu Thr Lys
    1010            1015            1020

Lys Lys Gln Trp Cys Ala Asn Cys Lys Lys Glu Ala Ile Phe Tyr
    1025            1030            1035
```

```
Cys Cys Trp Asn Thr Ser Tyr Cys Asp Tyr Pro Cys Gln Gln Ala
    1040                1045            1050
```

```
His Trp Pro Glu His Met Lys Ser Cys Thr Gln Ser Ala Thr Ala
    1055                1060            1065
```

```
Pro Gln Gln Glu Ala Asp Ala Glu Val Asn Thr Glu Thr Leu Asn
    1070                1075            1080
```

```
Lys Ser Ser Gln Gly Ser Ser Ser Ser Thr Gln Ser Ala Pro Ser
    1085                1090            1095
```

```
Glu Thr Ala Ser Ala Ser Lys Glu Lys Glu Thr Ser Ala Glu Lys
    1100                1105            1110
```

```
Ser Lys Glu Ser Gly Ser Thr Leu Asp Leu Ser Gly Ser Arg Glu
    1115                1120            1125
```

```
Thr Pro Ser Ser Ile Leu Leu Gly Ser Asn Gln Gly Ser Val Ser
    1130                1135            1140
```

```
Lys Arg Cys Asp Lys Gln Pro Ala Tyr Ala Pro Thr Thr Thr Asp
    1145                1150            1155
```

```
His Gln Pro His Pro Asn Tyr Pro Ala Gln Lys Tyr His Ser Arg
    1160                1165            1170
```

```
Ser Asn Lys Ser Ser Trp Ser Ser Ser Asp Glu Lys Arg Gly Ser
    1175                1180            1185
```

```
Thr Arg Ser Asp His Asn Thr Ser Thr Ser Thr Lys Ser Leu Leu
    1190                1195            1200
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```
Pro Lys Glu Ser Arg Leu Asp Thr Phe Trp Asp
    1205                1210
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ata agg tgg aaa agc ata gct cac tct gta ata ggc tat ttt cat gat        107
Met Arg Trp Lys Ser Ile Ala His Ser Val Ile Gly Tyr Phe His Asp
1               5                   10                  15

ttc aag tgg ttt tat gaa gaa aca gaa agc agt gat gat gtt gaa gtg        155
Phe Lys Trp Phe Tyr Glu Glu Thr Glu Ser Ser Asp Asp Val Glu Val
            20                  25                  30

ctg act ctc aag aaa ttc aaa gga gac ctg gcc tac aga cga caa gag        203
Leu Thr Leu Lys Lys Phe Lys Gly Asp Leu Ala Tyr Arg Arg Gln Glu
        35                  40                  45

tat cag aaa gca ctg cag gag tat tcc agt atc tct gaa aaa ttg tca        251
Tyr Gln Lys Ala Leu Gln Glu Tyr Ser Ser Ile Ser Glu Lys Leu Ser
    50                  55                  60

tca acc aat ttt gcc atg aaa agg gat gtc cag gaa ggt cag gct cgg        299
Ser Thr Asn Phe Ala Met Lys Arg Asp Val Gln Glu Gly Gln Ala Arg
65                  70                  75                  80

tgt ctg gct cac ctg ggt agg cat atg gag gcg ctg gag att gct gca        347
Cys Leu Ala His Leu Gly Arg His Met Glu Ala Leu Glu Ile Ala Ala
                85                  90                  95

aac ttg gaa aat aaa gca acc aac aca gac cat tta acc acg gta ctc        395
Asn Leu Glu Asn Lys Ala Thr Asn Thr Asp His Leu Thr Thr Val Leu
            100                 105                 110

tac ctc cag ctt gct att tgt tca agt ttg cag aac ttg gag aaa aca        443
Tyr Leu Gln Leu Ala Ile Cys Ser Ser Leu Gln Asn Leu Glu Lys Thr
        115                 120                 125

att ttc tgc ctg cag aaa ctg att tct ttg cat cct ttt aat cct tgg        491
Ile Phe Cys Leu Gln Lys Leu Ile Ser Leu His Pro Phe Asn Pro Trp
    130                 135                 140

aac tgg ggc aaa ttg gca gag gct tac ctg aat ctg ggg cca gct ctt        539
Asn Trp Gly Lys Leu Ala Glu Ala Tyr Leu Asn Leu Gly Pro Ala Leu
145                 150                 155                 160

tca gca gca ctt gcg tca tct cag aaa cag cac agt ttc acc tca agt        587
Ser Ala Ala Leu Ala Ser Ser Gln Lys Gln His Ser Phe Thr Ser Ser
                165                 170                 175

gac aaa act atc aaa tcc ttc ttt cca cac tca gga aaa gac tgt ctt        635
Asp Lys Thr Ile Lys Ser Phe Phe Pro His Ser Gly Lys Asp Cys Leu
            180                 185                 190

ttg tgt ttt cct gaa acc ttg cct gag agc tct tta ttt tct gtg gaa        683
Leu Cys Phe Pro Glu Thr Leu Pro Glu Ser Ser Leu Phe Ser Val Glu
        195                 200                 205

gcg aat agc agt aat agc cag aaa aat gag aaa gct ctg aca aat atc        731
Ala Asn Ser Ser Asn Ser Gln Lys Asn Glu Lys Ala Leu Thr Asn Ile
210                 215                 220

caa aac tgt atg gca gaa aag aga gaa aca gtg ttg ata gag act cag        779
Gln Asn Cys Met Ala Glu Lys Arg Glu Thr Val Leu Ile Glu Thr Gln
225                 230                 235                 240

ctg aaa gca tgt gcc tct ttt ata cga acc agg ctt ctg ctt cag ttt        827
Leu Lys Ala Cys Ala Ser Phe Ile Arg Thr Arg Leu Leu Leu Gln Phe
                245                 250                 255
```

```
acc caa cct cag caa aca tcg ttt gct ttg gag agg aac tta agg act     875
Thr Gln Pro Gln Gln Thr Ser Phe Ala Leu Glu Arg Asn Leu Arg Thr
            260                     265                 270

cag cag gaa att gaa gat aaa atg aaa ggg ttc agc ttc aaa gaa gac     923
Gln Gln Glu Ile Glu Asp Lys Met Lys Gly Phe Ser Phe Lys Glu Asp
        275                 280                 285

act ttg ctg ttg ata gct gag gtt atg gga gaa gat atc cca gaa aaa     971
Thr Leu Leu Leu Ile Ala Glu Val Met Gly Glu Asp Ile Pro Glu Lys
    290                 295                 300

ata aaa gat gaa gtt cac cca gag gtg aag tgt gtt ggc tcc gta gcc    1019
Ile Lys Asp Glu Val His Pro Glu Val Lys Cys Val Gly Ser Val Ala
305                 310                 315                 320

ctg act gcc ttg gtg act gta tcc tca gaa gaa ttt gaa gac aag tgg    1067
Leu Thr Ala Leu Val Thr Val Ser Ser Glu Glu Phe Glu Asp Lys Trp
                325                 330                 335

ttc aga aag atc aaa gac cat ttc tgt cca ttt gaa aat cag ttc cat    1115
Phe Arg Lys Ile Lys Asp His Phe Cys Pro Phe Glu Asn Gln Phe His
            340                 345                 350

aca gag ata caa atc ttg gct tagtgggtta taaaaaacaa aaccacaaat       1166
Thr Glu Ile Gln Ile Leu Ala
            355

atcttgtact gtattaattg tccttgttta cttcagacag gatccattgc taatcatgga  1226

gtataaatga ttatttatgt tttat                                        1251


<210>   26
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<212>   PRT
<213>   Homo sapiens

<400>   26

Met Arg Trp Lys Ser Ile Ala His Ser Val Ile Gly Tyr Phe His Asp
1               5                   10                  15


Phe Lys Trp Phe Tyr Glu Glu Thr Glu Ser Ser Asp Asp Val Glu Val
            20                  25                  30


Leu Thr Leu Lys Lys Phe Lys Gly Asp Leu Ala Tyr Arg Arg Gln Glu
        35                  40                  45


Tyr Gln Lys Ala Leu Gln Glu Tyr Ser Ser Ile Ser Glu Lys Leu Ser
    50                  55                  60


Ser Thr Asn Phe Ala Met Lys Arg Asp Val Gln Glu Gly Gln Ala Arg
65                  70                  75                  80


Cys Leu Ala His Leu Gly Arg His Met Glu Ala Leu Glu Ile Ala Ala
                85                  90                  95
```

Asn Leu Glu Asn Lys Ala Thr Asn Thr Asp His Leu Thr Thr Val Leu
        100   105   110

Tyr Leu Gln Leu Ala Ile Cys Ser Ser Leu Gln Asn Leu Glu Lys Thr
        115   120   125

Ile Phe Cys Leu Gln Lys Leu Ile Ser Leu His Pro Phe Asn Pro Trp
130   135   140

Asn Trp Gly Lys Leu Ala Glu Ala Tyr Leu Asn Leu Gly Pro Ala Leu
145   150   155   160

Ser Ala Ala Leu Ala Ser Ser Gln Lys Gln His Ser Phe Thr Ser Ser
            165   170   175

Asp Lys Thr Ile Lys Ser Phe Phe Pro His Ser Gly Lys Asp Cys Leu
        180   185   190

Leu Cys Phe Pro Glu Thr Leu Pro Glu Ser Ser Leu Phe Ser Val Glu
        195   200   205

Ala Asn Ser Ser Asn Ser Gln Lys Asn Glu Lys Ala Leu Thr Asn Ile
    210   215   220

Gln Asn Cys Met Ala Glu Lys Arg Glu Thr Val Leu Ile Glu Thr Gln
225   230   235   240

Leu Lys Ala Cys Ala Ser Phe Ile Arg Thr Arg Leu Leu Leu Gln Phe
            245   250   255

Thr Gln Pro Gln Gln Thr Ser Phe Ala Leu Glu Arg Asn Leu Arg Thr
        260   265   270

Gln Gln Glu Ile Glu Asp Lys Met Lys Gly Phe Ser Phe Lys Glu Asp
        275   280   285

Thr Leu Leu Leu Ile Ala Glu Val Met Gly Glu Asp Ile Pro Glu Lys
        290   295   300

Ile Lys Asp Glu Val His Pro Glu Val Lys Cys Val Gly Ser Val Ala
305   310   315   320

Leu Thr Ala Leu Val Thr Val Ser Ser Glu Glu Phe Glu Asp Lys Trp
            325   330   335

Phe Arg Lys Ile Lys Asp His Phe Cys Pro Phe Glu Asn Gln Phe His
        340   345   350

Thr Glu Ile Gln Ile Leu Ala
         355

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<400> 27
ggtagtgacc ctcgggcctc gcc atg aag agc cgc ttt agc acc att gac ctc   53
                          Met Lys Ser Arg Phe Ser Thr Ile Asp Leu
                          1   5   10

cgc gcc gta ctc gcg gag ctg aat gct agc ttg cta gga atg aga gta   101
Arg Ala Val Leu Ala Glu Leu Asn Ala Ser Leu Leu Gly Met Arg Val
                15   20   25

aac aat gtt tat gat gtg gat aat aag aca tac ctt att cgt ctt caa   149
Asn Asn Val Tyr Asp Val Asp Asn Lys Thr Tyr Leu Ile Arg Leu Gln
                30   35   40

aaa ccg gac ttt aaa gct aca ctt tta ctt gaa tct ggc ata cga att   197
Lys Pro Asp Phe Lys Ala Thr Leu Leu Leu Glu Ser Gly Ile Arg Ile
            45   50   55

cat aca aca gaa ttt gag tgg cct aag aat atg atg ccg tct agt ttt   245
His Thr Thr Glu Phe Glu Trp Pro Lys Asn Met Met Pro Ser Ser Phe
        60   65   70

gcc atg aag tgc cga aaa cat ttg aag agt cgg aga tta gtc agt gca   293
Ala Met Lys Cys Arg Lys His Leu Lys Ser Arg Arg Leu Val Ser Ala
75   80   85   90

aaa cag ctt ggt gtg gat aga att gta gat ttt caa ttt gga agt gat   341
Lys Gln Leu Gly Val Asp Arg Ile Val Asp Phe Gln Phe Gly Ser Asp
                95   100   105

gaa gct gct tac cat tta atc att gag ctc tat gat agg ggg aac att   389
Glu Ala Ala Tyr His Leu Ile Ile Glu Leu Tyr Asp Arg Gly Asn Ile
                110   115   120

gtt ctt aca gat tat gag tac gta att tta aat att cta agg ttt cga   437
Val Leu Thr Asp Tyr Glu Tyr Val Ile Leu Asn Ile Leu Arg Phe Arg
            125   130   135

act gat gag gca gat gat gtt aaa ttt gct gtt cgt gaa cgc tat cca   485
Thr Asp Glu Ala Asp Asp Val Lys Phe Ala Val Arg Glu Arg Tyr Pro
    140   145   150

ctt gat cat gct aga gct gct gaa cct ttg ctt act ttg gaa agg ttg   533
Leu Asp His Ala Arg Ala Ala Glu Pro Leu Leu Thr Leu Glu Arg Leu
155   160   165   170

act gaa ata gta gcc agc gca cct aag ggt gaa cta ctg aag agg gtg   581
Thr Glu Ile Val Ala Ser Ala Pro Lys Gly Glu Leu Leu Lys Arg Val
                175   180   185

```
ctt aac cca tta ctt ccc tat gga cca gct ctc att gaa cac tgt ctt        629
Leu Asn Pro Leu Leu Pro Tyr Gly Pro Ala Leu Ile Glu His Cys Leu
            190             195             200

tta gaa aat gga ttc tcg ggt aat gtc aaa gtg gat gaa aaa ctt gaa        677
Leu Glu Asn Gly Phe Ser Gly Asn Val Lys Val Asp Glu Lys Leu Glu
        205             210             215

act aaa gat att gaa aaa gta ctt gtt tct ctg cag aaa gca gaa gac        725
Thr Lys Asp Ile Glu Lys Val Leu Val Ser Leu Gln Lys Ala Glu Asp
    220             225             230

tat atg aaa aca aca tcc aac ttc agt ggg aag gga tat atc att cag        773
Tyr Met Lys Thr Thr Ser Asn Phe Ser Gly Lys Gly Tyr Ile Ile Gln
235             240             245             250

aaa aga gaa ata aaa cca tgc ttg gaa gca gat aaa cca gtt gaa gac        821
Lys Arg Glu Ile Lys Pro Cys Leu Glu Ala Asp Lys Pro Val Glu Asp
                255             260             265

ata ctg acg tat gag gaa ttt cat cct ttc ttg ttt tct caa cat tca        869
Ile Leu Thr Tyr Glu Glu Phe His Pro Phe Leu Phe Ser Gln His Ser
            270             275             280

caa tgt cca tat ata gaa ttt gaa tca ttt gac aag gcg gtg gat gaa        917
Gln Cys Pro Tyr Ile Glu Phe Glu Ser Phe Asp Lys Ala Val Asp Glu
        285             290             295

ttt tat tcc aag ata gaa ggc cag aaa att gac tta aaa gct tta caa        965
Phe Tyr Ser Lys Ile Glu Gly Gln Lys Ile Asp Leu Lys Ala Leu Gln
    300             305             310

cag gaa aag caa gca ttg aag aaa tta gat aat gtt cga aag gat cac       1013
Gln Glu Lys Gln Ala Leu Lys Lys Leu Asp Asn Val Arg Lys Asp His
315             320             325             330

gaa aac aga ttg gaa gct ctt cag cag gct cag gaa ata gac aaa ctg       1061
Glu Asn Arg Leu Glu Ala Leu Gln Gln Ala Gln Glu Ile Asp Lys Leu
            335             340             345

aaa gga gag ctc ata gaa atg aac cta caa ata gtt gac aga gcc att       1109
Lys Gly Glu Leu Ile Glu Met Asn Leu Gln Ile Val Asp Arg Ala Ile
            350             355             360

cag gta gtt cga agt gct tta gct aac cag ata gat tgg aca gaa att       1157
Gln Val Val Arg Ser Ala Leu Ala Asn Gln Ile Asp Trp Thr Glu Ile
        365             370             375

ggg tta att gtg aaa gaa gcc cag gct caa gga gac cct gtt gca agt       1205
Gly Leu Ile Val Lys Glu Ala Gln Ala Gln Gly Asp Pro Val Ala Ser
    380             385             390

gca atc aaa gaa tta aaa cta caa aca aac cat gtt aca atg ctg cta       1253
Ala Ile Lys Glu Leu Lys Leu Gln Thr Asn His Val Thr Met Leu Leu
395             400             405             410

aga aat cca tac ttg tta tca gag gag gaa gat gat gat gtt gat ggt       1301
Arg Asn Pro Tyr Leu Leu Ser Glu Glu Glu Asp Asp Asp Val Asp Gly
            415             420             425

gac gtc aat gtt gag aaa aat gaa act gaa cca cca aaa gga aaa aag       1349
Asp Val Asn Val Glu Lys Asn Glu Thr Glu Pro Pro Lys Gly Lys Lys
            430             435             440
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```
aaa aaa caa aag aat aaa cag ctg cag aag cct cag aaa aat aag ccc       1397
Lys Lys Gln Lys Asn Lys Gln Leu Gln Lys Pro Gln Lys Asn Lys Pro
        445                 450                 455

tta ctt gta gat gtt gat ctc agc ttg tca gca tat gcc aat gcc aaa       1445
Leu Leu Val Asp Val Asp Leu Ser Leu Ser Ala Tyr Ala Asn Ala Lys
    460                 465                 470

aag tat tat gat cac aag aga tat gct gct aag aaa aca caa aag act       1493
Lys Tyr Tyr Asp His Lys Arg Tyr Ala Ala Lys Lys Thr Gln Lys Thr
475                 480                 485                 490

gtt gaa gct gct gag aag gca ttc aag tca gca gaa aag aaa aca aag       1541
Val Glu Ala Ala Glu Lys Ala Phe Lys Ser Ala Glu Lys Lys Thr Lys
                495                 500                 505

caa aca tta aaa gaa gtt cag act gtt acc tct att caa aaa gca aga       1589
Gln Thr Leu Lys Glu Val Gln Thr Val Thr Ser Ile Gln Lys Ala Arg
            510                 515                 520

aaa gta tat tgg ttt gag aaa ttt ctg tgg ttc att agc tca gag aac       1637
Lys Val Tyr Trp Phe Glu Lys Phe Leu Trp Phe Ile Ser Ser Glu Asn
        525                 530                 535

tat cta att ata ggt gga cga gat cag caa cag aat gaa ata att gtg       1685
Tyr Leu Ile Ile Gly Gly Arg Asp Gln Gln Gln Asn Glu Ile Ile Val
        540                 545                 550

aaa aga tac ttg aca cca gga gac att tat gta cat gct gat ctt cat       1733
Lys Arg Tyr Leu Thr Pro Gly Asp Ile Tyr Val His Ala Asp Leu His
555                 560                 565                 570

gga gct act agc tgt gta att aag aat cca aca gga gaa ccc atc ccc       1781
Gly Ala Thr Ser Cys Val Ile Lys Asn Pro Thr Gly Glu Pro Ile Pro
                575                 580                 585

cca cgg acc ttg act gaa gct ggc aca atg gca ctt tgc tac agt gct       1829
Pro Arg Thr Leu Thr Glu Ala Gly Thr Met Ala Leu Cys Tyr Ser Ala
            590                 595                 600

gct tgg gat gca cga gtt atc act agt gct tgg tgg gtg tac cat cat       1877
Ala Trp Asp Ala Arg Val Ile Thr Ser Ala Trp Trp Val Tyr His His
            605                 610                 615

cag gta tct aaa aca gca cca act gga gaa tat ttg aca aca gga agc       1925
Gln Val Ser Lys Thr Ala Pro Thr Gly Glu Tyr Leu Thr Thr Gly Ser
        620                 625                 630

ttc atg ata aga gga aaa aag aat ttt ctt cct ccc tca tat cta atg       1973
Phe Met Ile Arg Gly Lys Lys Asn Phe Leu Pro Pro Ser Tyr Leu Met
635                 640                 645                 650

atg ggg ttt agc ttc ctt ttt aag gta gat gag tct tgt gtt tgg aga       2021
Met Gly Phe Ser Phe Leu Phe Lys Val Asp Glu Ser Cys Val Trp Arg
            655                 660                 665

cat cag ggt gaa cga aaa gtc aga gta cag gat gaa gac atg gag aca       2069
His Gln Gly Glu Arg Lys Val Arg Val Gln Asp Glu Asp Met Glu Thr
            670                 675                 680

ctg gca agt tgt aca agt gaa ctc ata tca gaa gaa atg gaa caa tta       2117
Leu Ala Ser Cys Thr Ser Glu Leu Ile Ser Glu Glu Met Glu Gln Leu
            685                 690                 695
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gat gga ggt gac acg agc agt gat gag gat aaa gaa gaa cat gaa act        2165
Asp Gly Gly Asp Thr Ser Ser Asp Glu Asp Lys Glu Glu His Glu Thr
    700             705             710

cct gtg gaa gta gaa ctc atg act cag gtt gac caa gag gat atc act        2213
Pro Val Glu Val Glu Leu Met Thr Gln Val Asp Gln Glu Asp Ile Thr
715             720             725             730

ctt cag agt ggc aga gat gaa cta aat gag gag ctc att cag gaa gaa        2261
Leu Gln Ser Gly Arg Asp Glu Leu Asn Glu Glu Leu Ile Gln Glu Glu
                735             740             745

agc tct gaa gac gaa gga gaa tat gaa gag gtt aga aaa gat cag gat        2309
Ser Ser Glu Asp Glu Gly Glu Tyr Glu Glu Val Arg Lys Asp Gln Asp
                750             755             760

tct gtt ggt gaa atg aag gat gaa ggg gaa gag aca tta aat tat cct        2357
Ser Val Gly Glu Met Lys Asp Glu Gly Glu Glu Thr Leu Asn Tyr Pro
                765             770             775

gat act acc att gac ttg tct cac ctt caa ccc caa agg tcc atc cag        2405
Asp Thr Thr Ile Asp Leu Ser His Leu Gln Pro Gln Arg Ser Ile Gln
    780             785             790

aaa ttg gct tca aaa gag gaa tct tct aat tct agt gac agt aaa tca        2453
Lys Leu Ala Ser Lys Glu Glu Ser Ser Asn Ser Ser Asp Ser Lys Ser
795             800             805             810

cag agc cgg aga cat ttg tca gcc aag gaa aga agg gaa atg aaa aag        2501
Gln Ser Arg Arg His Leu Ser Ala Lys Glu Arg Arg Glu Met Lys Lys
                815             820             825

aaa aaa ctt cca agt gac tca gga gat tta gaa gcg tta gag gga aag        2549
Lys Lys Leu Pro Ser Asp Ser Gly Asp Leu Glu Ala Leu Glu Gly Lys
                830             835             840

gat aaa gaa aaa gaa agt act gta cac att gaa act cat cag aac aca        2597
Asp Lys Glu Lys Glu Ser Thr Val His Ile Glu Thr His Gln Asn Thr
                845             850             855

agc aaa aat gtt gcg gct gtg cag cca atg aaa cga gga caa aag agt        2645
Ser Lys Asn Val Ala Ala Val Gln Pro Met Lys Arg Gly Gln Lys Ser
    860             865             870

aaa atg aaa aaa atg aaa gaa aaa tac aaa gac cag gat gaa gaa gac        2693
Lys Met Lys Lys Met Lys Glu Lys Tyr Lys Asp Gln Asp Glu Glu Asp
875             880             885             890

cgt gaa ctt atc atg aag ttg ctg ggg tct gca ggt tca aac aaa gaa        2741
Arg Glu Leu Ile Met Lys Leu Leu Gly Ser Ala Gly Ser Asn Lys Glu
                895             900             905

gaa aaa ggg aag aag ggg aag aaa gga aaa aca aag gac gaa cct gtg        2789
Glu Lys Gly Lys Lys Gly Lys Lys Gly Lys Thr Lys Asp Glu Pro Val
                910             915             920

aag aaa cag ccc cag aaa cct aga ggt gga cag agg gtc tct gac aac        2837
Lys Lys Gln Pro Gln Lys Pro Arg Gly Gly Gln Arg Val Ser Asp Asn
    925             930             935

att aag aaa gaa act ccg ttc ctt gag gtt ata act cat gag tta caa        2885
Ile Lys Lys Glu Thr Pro Phe Leu Glu Val Ile Thr His Glu Leu Gln
    940             945             950
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gac ttt gct gta gat gat cca cat gat gac aag gaa gag caa gat ctg      2933
Asp Phe Ala Val Asp Asp Pro His Asp Asp Lys Glu Glu Gln Asp Leu
955                 960                 965                 970

gat caa cag gga aat gag gaa aac cta ttt gat tct ttg aca ggc cag      2981
Asp Gln Gln Gly Asn Glu Glu Asn Leu Phe Asp Ser Leu Thr Gly Gln
                975                 980                 985

cca cat cct gaa gat gta cta ctg ttt gcc att cca ata tgt  gcc cct     3029
Pro His Pro Glu Asp Val Leu Leu Phe Ala Ile Pro Ile Cys  Ala Pro
            990                 995                 1000

tac acc acc  atg aca aac tac aaa  tat aaa gtg aaa ctt  act cct        3074
Tyr Thr Thr  Met Thr Asn Tyr Lys  Tyr Lys Val Lys Leu  Thr Pro
        1005                 1010                 1015

gga gtg cag  aaa aag gga aaa gct  gca aaa aca gcc ttg  aat agt        3119
Gly Val Gln  Lys Lys Gly Lys Ala  Ala Lys Thr Ala Leu  Asn Ser
        1020                 1025                 1030

ttc atg cat  tcc aaa gaa gca aca  gca aga gaa aaa gac  tta ttc        3164
Phe Met His  Ser Lys Glu Ala Thr  Ala Arg Glu Lys Asp  Leu Phe
        1035                 1040                 1045

cgc agc gta  aag gac aca gat tta  tca aga aac att cct  ggc aaa        3209
Arg Ser Val  Lys Asp Thr Asp Leu  Ser Arg Asn Ile Pro  Gly Lys
        1050                 1055                 1060

gtg aaa agt  gtc tgc acc caa tct  tct gaa cgt aaa aag  gaa ata        3254
Val Lys Ser  Val Cys Thr Gln Ser  Ser Glu Arg Lys Lys  Glu Ile
        1065                 1070                 1075

gct gaa atg  aaa ttc taaaatattt gagaagagcc aattttatag cctttggaa      3309
Ala Glu Met  Lys Phe
        1080

gttcaaagat gaaagcacca tgtatcagga tttccgcatt ataaaatga actaaacatt     3369

gccttgctat attcaccaaa aggacttaat tcttgttttt ttcccagttt tatatagagg     3429

aaacactgtc tatgatagga tttccaaaag tatttgtgga cagttaaatg ctaattatat     3489

acatctgtag ttattctaca ttttcttgaa atttgggagg ttaataccaa gtattcattt     3549

catgatgtaa agaaactgaa cagtgaagtg cttgattgc ttaaactatt gacttggtaa      3609

gtctactgta tataacatct aatatatata ttacaggcca aatgaactaa acattgcctt     3669

gctatattca ccaaaaggac ttaattcttg tttttttccc agttttatat agaggaaaca     3729

ctatgatagg atttcctaaa gtatttgtgg acagttaaat gctaattata tacatctgta     3789

gttattctac attttcttga aatttgagag gttaatacca agtattcatt tcatgatgta     3849

aagaaactga acagtgaagt ggcttgattg cttaaactat tgacttggta agtctactgt     3909

atataacatc taatatatat atattatagg ccagctacaa ggggtttaaa tatttaggat     3969

tgtgtcttga aaactaagta ttggagtgga ttttcttctg ctttcattga tacttgtcag     4029

aaaaaaatat tagaccaaaa tgtaaaatat aagtaataat tctcatgaaa                4079
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Met Lys Ser Arg Phe Ser Thr Ile Asp Leu Arg Ala Val Leu Ala Glu
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Leu Asn Ala Ser Leu Leu Gly Met Arg Val Asn Asn Val Tyr Asp Val
            20                  25                  30

Asp Asn Lys Thr Tyr Leu Ile Arg Leu Gln Lys Pro Asp Phe Lys Ala
            35                  40                  45

Thr Leu Leu Leu Glu Ser Gly Ile Arg Ile His Thr Thr Glu Phe Glu
        50                  55                  60

Trp Pro Lys Asn Met Met Pro Ser Ser Phe Ala Met Lys Cys Arg Lys
65                  70                  75                  80

His Leu Lys Ser Arg Arg Leu Val Ser Ala Lys Gln Leu Gly Val Asp
                85                  90                  95

Arg Ile Val Asp Phe Gln Phe Gly Ser Asp Glu Ala Ala Tyr His Leu
            100                 105                 110

Ile Ile Glu Leu Tyr Asp Arg Gly Asn Ile Val Leu Thr Asp Tyr Glu
            115                 120                 125

Tyr Val Ile Leu Asn Ile Leu Arg Phe Arg Thr Asp Glu Ala Asp Asp
    130                 135                 140

Val Lys Phe Ala Val Arg Glu Arg Tyr Pro Leu Asp His Ala Arg Ala
145                 150                 155                 160

Ala Glu Pro Leu Leu Thr Leu Glu Arg Leu Thr Glu Ile Val Ala Ser
                165                 170                 175

Ala Pro Lys Gly Glu Leu Leu Lys Arg Val Leu Asn Pro Leu Leu Pro
            180                 185                 190

Tyr Gly Pro Ala Leu Ile Glu His Cys Leu Leu Glu Asn Gly Phe Ser
        195                 200                 205

Gly Asn Val Lys Val Asp Glu Lys Leu Glu Thr Lys Asp Ile Glu Lys
    210                 215                 220

Val Leu Val Ser Leu Gln Lys Ala Glu Asp Tyr Met Lys Thr Thr Ser
225                 230                 235                 240
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Asn Phe Ser Gly Lys Gly Tyr Ile Ile Gln Lys Arg Glu Ile Lys Pro
             245             250             255

Cys Leu Glu Ala Asp Lys Pro Val Glu Asp Ile Leu Thr Tyr Glu Glu
         260             265             270

Phe His Pro Phe Leu Phe Ser Gln His Ser Gln Cys Pro Tyr Ile Glu
         275             280             285

Phe Glu Ser Phe Asp Lys Ala Val Asp Glu Phe Tyr Ser Lys Ile Glu
     290             295             300

Gly Gln Lys Ile Asp Leu Lys Ala Leu Gln Gln Glu Lys Gln Ala Leu
305             310             315             320

Lys Lys Leu Asp Asn Val Arg Lys Asp His Glu Asn Arg Leu Glu Ala
             325             330             335

Leu Gln Gln Ala Gln Glu Ile Asp Lys Leu Lys Gly Glu Leu Ile Glu
         340             345             350

Met Asn Leu Gln Ile Val Asp Arg Ala Ile Gln Val Val Arg Ser Ala
         355             360             365

Leu Ala Asn Gln Ile Asp Trp Thr Glu Ile Gly Leu Ile Val Lys Glu
     370             375             380

Ala Gln Ala Gln Gly Asp Pro Val Ala Ser Ala Ile Lys Glu Leu Lys
385             390             395             400

Leu Gln Thr Asn His Val Thr Met Leu Leu Arg Asn Pro Tyr Leu Leu
             405             410             415

Ser Glu Glu Glu Asp Asp Asp Val Asp Gly Asp Val Asn Val Glu Lys
         420             425             430

Asn Glu Thr Glu Pro Pro Lys Gly Lys Lys Lys Lys Gln Lys Asn Lys
         435             440             445

Gln Leu Gln Lys Pro Gln Lys Asn Lys Pro Leu Leu Val Asp Val Asp
     450             455             460

Leu Ser Leu Ser Ala Tyr Ala Asn Ala Lys Lys Tyr Tyr Asp His Lys
465             470             475             480

Arg Tyr Ala Ala Lys Lys Thr Gln Lys Thr Val Glu Ala Ala Glu Lys
             485             490             495
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Ala Phe Lys Ser Ala Glu Lys Lys Thr Lys Gln Thr Leu Lys Glu Val
        500   505   510

Gln Thr Val Thr Ser Ile Gln Lys Ala Arg Lys Val Tyr Trp Phe Glu
        515   520   525

Lys Phe Leu Trp Phe Ile Ser Ser Glu Asn Tyr Leu Ile Ile Gly Gly
    530   535   540

Arg Asp Gln Gln Gln Asn Glu Ile Ile Val Lys Arg Tyr Leu Thr Pro
545   550   555   560

Gly Asp Ile Tyr Val His Ala Asp Leu His Gly Ala Thr Ser Cys Val
            565   570   575

Ile Lys Asn Pro Thr Gly Glu Pro Ile Pro Pro Arg Thr Leu Thr Glu
        580   585   590

Ala Gly Thr Met Ala Leu Cys Tyr Ser Ala Ala Trp Asp Ala Arg Val
        595   600   605

Ile Thr Ser Ala Trp Trp Val Tyr His His Gln Val Ser Lys Thr Ala
        610   615   620

Pro Thr Gly Glu Tyr Leu Thr Thr Gly Ser Phe Met Ile Arg Gly Lys
625   630   635   640

Lys Asn Phe Leu Pro Pro Ser Tyr Leu Met Met Gly Phe Ser Phe Leu
            645   650   655

Phe Lys Val Asp Glu Ser Cys Val Trp Arg His Gln Gly Glu Arg Lys
        660   665   670

Val Arg Val Gln Asp Glu Asp Met Glu Thr Leu Ala Ser Cys Thr Ser
        675   680   685

Glu Leu Ile Ser Glu Glu Met Glu Gln Leu Asp Gly Gly Asp Thr Ser
    690   695   700

Ser Asp Glu Asp Lys Glu Glu His Glu Thr Pro Val Glu Val Glu Leu
705   710   715   720

Met Thr Gln Val Asp Gln Glu Asp Ile Thr Leu Gln Ser Gly Arg Asp
            725   730   735

Glu Leu Asn Glu Glu Leu Ile Gln Glu Glu Ser Ser Glu Asp Glu Gly
    740   745   750

Glu Tyr Glu Glu Val Arg Lys Asp Gln Asp Ser Val Gly Glu Met Lys
        755   760   765

Asp Glu Gly Glu Glu Thr Leu Asn Tyr Pro Asp Thr Thr Ile Asp Leu
    770   775   780

Ser His Leu Gln Pro Gln Arg Ser Ile Gln Lys Leu Ala Ser Lys Glu
785   790   795   800

Glu Ser Ser Asn Ser Ser Asp Ser Lys Ser Gln Ser Arg Arg His Leu
                805   810   815

Ser Ala Lys Glu Arg Arg Glu Met Lys Lys Lys Lys Leu Pro Ser Asp
            820   825   830

Ser Gly Asp Leu Glu Ala Leu Glu Gly Lys Asp Lys Glu Lys Glu Ser
        835   840   845

Thr Val His Ile Glu Thr His Gln Asn Thr Ser Lys Asn Val Ala Ala
    850   855   860

Val Gln Pro Met Lys Arg Gly Gln Lys Ser Lys Met Lys Lys Met Lys
865   870   875   880

Glu Lys Tyr Lys Asp Gln Asp Glu Glu Asp Arg Glu Leu Ile Met Lys
            885   890   895

Leu Leu Gly Ser Ala Gly Ser Asn Lys Glu Glu Lys Gly Lys Lys Gly
        900   905   910

Lys Lys Gly Lys Thr Lys Asp Glu Pro Val Lys Lys Gln Pro Gln Lys
        915   920   925

Pro Arg Gly Gly Gln Arg Val Ser Asp Asn Ile Lys Lys Glu Thr Pro
    930   935   940

Phe Leu Glu Val Ile Thr His Glu Leu Gln Asp Phe Ala Val Asp Asp
945   950   955   960

Pro His Asp Asp Lys Glu Glu Gln Asp Leu Asp Gln Gln Gly Asn Glu
            965   970   975

Glu Asn Leu Phe Asp Ser Leu Thr Gly Gln Pro His Pro Glu Asp Val
        980   985   990

Leu Leu Phe Ala Ile Pro Ile Cys Ala Pro Tyr Thr Thr Met Thr Asn
        995   1000   1005

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Tyr Lys  Tyr Lys Val Lys Leu  Thr Pro Gly Val Gln  Lys Lys Gly
    1010                 1015             1020


Lys Ala  Ala Lys Thr Ala Leu  Asn Ser Phe Met His  Ser Lys Glu
    1025                 1030             1035


Ala Thr  Ala Arg Glu Lys Asp  Leu Phe Arg Ser Val  Lys Asp Thr
    1040                 1045             1050


Asp Leu  Ser Arg Asn Ile Pro  Gly Lys Val Lys Ser  Val Cys Thr
    1055                 1060             1065


Gln Ser  Ser Glu Arg Lys Lys  Glu Ile Ala Glu Met  Lys Phe
    1070                 1075             1080


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cgccaccctg caagttgcac cttctagaat cagcaagcca agctcctctc acccagcgta     180

atgatgcgga aatgcaaatg caccatcatg ttgtgaccca tattgcgaaa attagaaaaa     240

aggaagttgt gtttcgctat tgcacgaagt tcagcccaga ggagaaactc gctcgccttc     300

agaagacagt acctcctaaa tggctctact ttgaacctgc tgggcaagga agagattttc     360

aaggaaacca tctaccgtgt gcaagctcct gccggccaac cccagacccc agcacggagc     420

cagtcgcctg tgcccgccaa ccctcagcat cctcctcaga aaggctggtg catcaggaa      480

gcccctggcc agcctccacc tgagcccagt gagctcagct ttaagg atg gag tca       535
                                                   Met Glu Ser
                                                     1

ggc agg ggg tcc tca acc cct cca gga ccc att gct gcc cta ggg atg     583
Gly Arg Gly Ser Ser Thr Pro Pro Gly Pro Ile Ala Ala Leu Gly Met
  5                  10                  15

cca gac act ggg cct ggc agt tcc tcc cta ggg aag ctt cag gcg ctc     631
Pro Asp Thr Gly Pro Gly Ser Ser Ser Leu Gly Lys Leu Gln Ala Leu
 20                  25                  30                  35

cct gtt ggg ccc aga gcc cac tgt ggg gac cct gtc agc ctg gct gca     679
Pro Val Gly Pro Arg Ala His Cys Gly Asp Pro Val Ser Leu Ala Ala
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gca ggg gac ggc tct cca gac ata ggc ccc acg gga gag ctg agt ggt     727
Ala Gly Asp Gly Ser Pro Asp Ile Gly Pro Thr Gly Glu Leu Ser Gly
            55                    60                    65

agc tta aag atc ccc aac cgg gac agc ggg atc gac agt cca tcc tcc     775
Ser Leu Lys Ile Pro Asn Arg Asp Ser Gly Ile Asp Ser Pro Ser Ser
        70                    75                    80

agt gtg gct gga gag aac ttt ccc tgc gag gag ggc ttg gag gct ggc     823
Ser Val Ala Gly Glu Asn Phe Pro Cys Glu Glu Gly Leu Glu Ala Gly
    85                    90                    95

cca agc ccc act gta ctg ggg gcg cac gca gag atg gcc ctg gac agc     871
Pro Ser Pro Thr Val Leu Gly Ala His Ala Glu Met Ala Leu Asp Ser
100                   105                   110                   115

cag gtc ccg aag gtc acc ccc cag gag gag gcg gac agc gac gtg ggt     919
Gln Val Pro Lys Val Thr Pro Gln Glu Glu Ala Asp Ser Asp Val Gly
                120                   125                   130

gag gaa cct gac tct gag aac acc ccc cag aag gct gac aag gat gcc     967
Glu Glu Pro Asp Ser Glu Asn Thr Pro Gln Lys Ala Asp Lys Asp Ala
            135                   140                   145

ggc ctg gcc cag cac tct ggc ccc cag aag ctt ctc cac att gcc cag     1015
Gly Leu Ala Gln His Ser Gly Pro Gln Lys Leu Leu His Ile Ala Gln
        150                   155                   160

gag ctc ctg cac acc gag gag acc tat gtg aag cgg ctg cac ctg ctg     1063
Glu Leu Leu His Thr Glu Glu Thr Tyr Val Lys Arg Leu His Leu Leu
        165                   170                   175

gac cag gtt ttc tgc acc agg ctg acg gat gcg ggg atc cct cca gaa     1111
Asp Gln Val Phe Cys Thr Arg Leu Thr Asp Ala Gly Ile Pro Pro Glu
180                   185                   190                   195

gtc atc atg ggc ata ttc tct aac atc tcc tcc atc cac cgc ttc cac     1159
Val Ile Met Gly Ile Phe Ser Asn Ile Ser Ser Ile His Arg Phe His
                200                   205                   210

ggg cag ttc ctg ctg ccg gag ctg aag acg cgg atc acg gag gag tgg     1207
Gly Gln Phe Leu Leu Pro Glu Leu Lys Thr Arg Ile Thr Glu Glu Trp
        215                   220                   225

gac aca aac cca cgg ctc ggg gac atc ctg cag aag ctg gcc cca ttc     1255
Asp Thr Asn Pro Arg Leu Gly Asp Ile Leu Gln Lys Leu Ala Pro Phe
        230                   235                   240

ctg aag atg tac ggc gag tat gtc aag aac ttt gac cga gcc gta ggg     1303
Leu Lys Met Tyr Gly Glu Tyr Val Lys Asn Phe Asp Arg Ala Val Gly
    245                   250                   255

ctg gtg agc acg tgg acc cag cgc tcc cca ctg ttt aaa gac gtc gtc     1351
Leu Val Ser Thr Trp Thr Gln Arg Ser Pro Leu Phe Lys Asp Val Val
260                   265                   270                   275

cac agc atc cag aag cag gag gta tgc ggg aac ctg acg ctg cag cac     1399
His Ser Ile Gln Lys Gln Glu Val Cys Gly Asn Leu Thr Leu Gln His
                280                   285                   290

cac atg ctg gag ccc gtg cag agg gtc ccc cgg tac gag ctg ctg ctc     1447
His Met Leu Glu Pro Val Gln Arg Val Pro Arg Tyr Glu Leu Leu Leu
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aag gac tat ctg aag agg ctc ccg cag gac gcc cca gac cgg aag gat        1495
Lys Asp Tyr Leu Lys Arg Leu Pro Gln Asp Ala Pro Asp Arg Lys Asp
        310                 315                 320

gcg gag agg tcc ttg gag ctc atc tcc aca gcc gcc aac cac tcc aat        1543
Ala Glu Arg Ser Leu Glu Leu Ile Ser Thr Ala Ala Asn His Ser Asn
    325                 330                 335

gct gcc att cgg aaa gtg gag aaa atg cac aag ctc ttg gag gtg tac        1591
Ala Ala Ile Arg Lys Val Glu Lys Met His Lys Leu Leu Glu Val Tyr
340                 345                 350                 355

gag cag ctg ggt ggg gaa gaa gac att gtc aac ccg gcc aat gaa ctg        1639
Glu Gln Leu Gly Gly Glu Glu Asp Ile Val Asn Pro Ala Asn Glu Leu
                360                 365                 370

atc aag gag ggc caa atc cag aaa ctg tca gcc aag aac ggc acc ccc        1687
Ile Lys Glu Gly Gln Ile Gln Lys Leu Ser Ala Lys Asn Gly Thr Pro
                375                 380                 385

cag gac cgc cac ctc ttc ctg ttc aac agc atg atc ctt tac tgt gtg        1735
Gln Asp Arg His Leu Phe Leu Phe Asn Ser Met Ile Leu Tyr Cys Val
        390                 395                 400

ccc aag ctg cgg ctc atg ggc cag aag ttc agc gtc cgg gag aag atg        1783
Pro Lys Leu Arg Leu Met Gly Gln Lys Phe Ser Val Arg Glu Lys Met
    405                 410                 415

gac atc tca ggc ctc cag gtg cag gat atc gtc aag cca aac aca gca        1831
Asp Ile Ser Gly Leu Gln Val Gln Asp Ile Val Lys Pro Asn Thr Ala
420                 425                 430                 435

cat aca ttc atc ata acg gga aga aaa agg tcc ctg gag ctg cag acg        1879
His Thr Phe Ile Ile Thr Gly Arg Lys Arg Ser Leu Glu Leu Gln Thr
                440                 445                 450

cgg aca gag gaa gag aag aaa gaa tgg att cag atc atc cag gcc acc        1927
Arg Thr Glu Glu Glu Lys Lys Glu Trp Ile Gln Ile Ile Gln Ala Thr
                455                 460                 465

atc gag aag cac aaa cag aac agc gaa acc ttc aag gct ttt ggt ggc        1975
Ile Glu Lys His Lys Gln Asn Ser Glu Thr Phe Lys Ala Phe Gly Gly
                470                 475                 480

gcc ttc agc cag gat gag gac ccc agc ctc tct cca gac atg cct atc        2023
Ala Phe Ser Gln Asp Glu Asp Pro Ser Leu Ser Pro Asp Met Pro Ile
    485                 490                 495

acg agc acc agc cct gtg gag cct gtg gtg acc acc gaa ggc agt tcg        2071
Thr Ser Thr Ser Pro Val Glu Pro Val Val Thr Thr Glu Gly Ser Ser
500                 505                 510                 515

ggt gca gca ggg ctc gag ccc aga aaa cta tcc tct aag acc aga cgt        2119
Gly Ala Ala Gly Leu Glu Pro Arg Lys Leu Ser Ser Lys Thr Arg Arg
                520                 525                 530

gac aag gag aag cag agc tgt aag agc tgt ggt gag acc ttc aac tcc        2167
Asp Lys Glu Lys Gln Ser Cys Lys Ser Cys Gly Glu Thr Phe Asn Ser
                535                 540                 545

atc acc aag agg agg cat cac tgc aag ctg tgt ggg gcg gtc atc tgt        2215
Ile Thr Lys Arg Arg His His Cys Lys Leu Cys Gly Ala Val Ile Cys
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          550                  555                  560

ggg aag tgc tcc gag ttc aag gcc gag aac agc cgg cag agc cgt gtc   2263
Gly Lys Cys Ser Glu Phe Lys Ala Glu Asn Ser Arg Gln Ser Arg Val
    565                  570                  575

tgc aga gat tgt ttc ctg aca cag cca gtg gcc cct gag agc aca gag   2311
Cys Arg Asp Cys Phe Leu Thr Gln Pro Val Ala Pro Glu Ser Thr Glu
580                  585                  590                  595

aag aca ccc act gca gac ccc cag ccc agc ctg ctc tgc ggc ccc ctg   2359
Lys Thr Pro Thr Ala Asp Pro Gln Pro Ser Leu Leu Cys Gly Pro Leu
                600                  605                  610

cgg ctg tca gag agc ggt gag acc tgg agc gag gtg tgg gcc gcc atc   2407
Arg Leu Ser Glu Ser Gly Glu Thr Trp Ser Glu Val Trp Ala Ala Ile
            615                  620                  625

ccc atg tca gat ccc cag gtg ctg cac ctg cag gga ggc agc cag gac   2455
Pro Met Ser Asp Pro Gln Val Leu His Leu Gln Gly Gly Ser Gln Asp
        630                  635                  640

ggc cgg ctg ccc cgc acc atc cct ctc ccc agc tgc aaa ctg agt gtg   2503
Gly Arg Leu Pro Arg Thr Ile Pro Leu Pro Ser Cys Lys Leu Ser Val
    645                  650                  655

ccg gac cct gag gag agg ctg gac tcg ggg cat gtg tgg aag ctg cag   2551
Pro Asp Pro Glu Glu Arg Leu Asp Ser Gly His Val Trp Lys Leu Gln
660                  665                  670                  675

tgg gcc aag cag tcc tgg tac ctg agc gcc tcc tcc gca gag ctg cag   2599
Trp Ala Lys Gln Ser Trp Tyr Leu Ser Ala Ser Ser Ala Glu Leu Gln
                680                  685                  690

cag cag tgg ctg gaa acc cta agc act gct gcc cat ggg gac acg gcc   2647
Gln Gln Trp Leu Glu Thr Leu Ser Thr Ala Ala His Gly Asp Thr Ala
            695                  700                  705

cag gac agc ccg ggg gcc ctg cag ctt cag gtc cct atg ggc gca gct   2695
Gln Asp Ser Pro Gly Ala Leu Gln Leu Gln Val Pro Met Gly Ala Ala
    710                  715                  720

gct ccg tgagctgagt ctcccactgc cctgcacacc accacattgg acctgtgctg   2751
Ala Pro
    725

tcctgggagg tggtgttgga ggccccatga agagcgccct ggactgctga gggtgggcca   2811

acagcccaga gctcaggaca cttggctttg gggggaagga aactgaggcc cagagagggg   2871

caaccactgg ccaagggtca cccagcaagt tttggctaag agcctggcct ccagccccag   2931

cagtgtggcc cagagcaggg gccgactgcc aaagtaacca tcatccatat gggccgtgtg   2991

gtgatgctgg cccggaaggc agaaagaggc agcatgggca ctgccaggga cagccacatc   3051

ctgctggtct gcagcgtggt ccaccccgcc tctgcccagc ctgtctacac cgtgtgagct   3111

gaatcgtgac ttgcttccca cctcctttct ctgtcctctc ctgaggttct gcctgcagcc   3171

cccaggaggt gggcctgccc atcctagct ggactcatgg ttcctaaata accacgctca   3231

gaagctctgc taggacttac cccagccact gagtggcagg cgcatgagat ttgtggctgt   3291
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tcctgatgct agtggcacac agtgcttatc tgcataaata aacactggcc accagcaaaa   3351

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa   3411

aaaaaaaaaa aaaaaaaaaa aaaaaaa   3438

<210>   30
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<212>   PRT
<213>   Homo sapiens

<400>   30

Met Glu Ser Gly Arg Gly Ser Ser Thr Pro Pro Gly Pro Ile Ala Ala
1   5   10   15

Leu Gly Met Pro Asp Thr Gly Pro Gly Ser Ser Ser Leu Gly Lys Leu
            20   25   30

Gln Ala Leu Pro Val Gly Pro Arg Ala His Cys Gly Asp Pro Val Ser
            35   40   45

Leu Ala Ala Ala Gly Asp Gly Ser Pro Asp Ile Gly Pro Thr Gly Glu
    50   55   60

Leu Ser Gly Ser Leu Lys Ile Pro Asn Arg Asp Ser Gly Ile Asp Ser
65   70   75   80

Pro Ser Ser Ser Val Ala Gly Glu Asn Phe Pro Cys Glu Glu Gly Leu
                85   90   95

Glu Ala Gly Pro Ser Pro Thr Val Leu Gly Ala His Ala Glu Met Ala
            100   105   110

Leu Asp Ser Gln Val Pro Lys Val Thr Pro Gln Glu Glu Ala Asp Ser
            115   120   125

Asp Val Gly Glu Glu Pro Asp Ser Glu Asn Thr Pro Gln Lys Ala Asp
    130   135   140

Lys Asp Ala Gly Leu Ala Gln His Ser Gly Pro Gln Lys Leu Leu His
145   150   155   160

Ile Ala Gln Glu Leu Leu His Thr Glu Glu Thr Tyr Val Lys Arg Leu
                165   170   175

His Leu Leu Asp Gln Val Phe Cys Thr Arg Leu Thr Asp Ala Gly Ile
            180   185   190

Pro Pro Glu Val Ile Met Gly Ile Phe Ser Asn Ile Ser Ser Ile His
            195   200   205

```
Arg Phe His Gly Gln Phe Leu Leu Pro Glu Leu Lys Thr Arg Ile Thr
    210                 215             220

Glu Glu Trp Asp Thr Asn Pro Arg Leu Gly Asp Ile Leu Gln Lys Leu
225                 230             235                 240

Ala Pro Phe Leu Lys Met Tyr Gly Glu Tyr Val Lys Asn Phe Asp Arg
                245             250             255

Ala Val Gly Leu Val Ser Thr Trp Thr Gln Arg Ser Pro Leu Phe Lys
            260             265             270

Asp Val Val His Ser Ile Gln Lys Gln Glu Val Cys Gly Asn Leu Thr
        275             280             285

Leu Gln His His Met Leu Glu Pro Val Gln Arg Val Pro Arg Tyr Glu
    290             295             300

Leu Leu Leu Lys Asp Tyr Leu Lys Arg Leu Pro Gln Asp Ala Pro Asp
305             310             315             320

Arg Lys Asp Ala Glu Arg Ser Leu Glu Leu Ile Ser Thr Ala Ala Asn
            325             330             335

His Ser Asn Ala Ala Ile Arg Lys Val Glu Lys Met His Lys Leu Leu
        340             345             350

Glu Val Tyr Glu Gln Leu Gly Gly Glu Glu Asp Ile Val Asn Pro Ala
        355             360             365

Asn Glu Leu Ile Lys Glu Gly Gln Ile Gln Lys Leu Ser Ala Lys Asn
370             375             380

Gly Thr Pro Gln Asp Arg His Leu Phe Leu Phe Asn Ser Met Ile Leu
385             390             395             400

Tyr Cys Val Pro Lys Leu Arg Leu Met Gly Gln Lys Phe Ser Val Arg
                405             410             415

Glu Lys Met Asp Ile Ser Gly Leu Gln Val Gln Asp Ile Val Lys Pro
            420             425             430

Asn Thr Ala His Thr Phe Ile Ile Thr Gly Arg Lys Arg Ser Leu Glu
        435             440             445

Leu Gln Thr Arg Thr Glu Glu Glu Lys Lys Glu Trp Ile Gln Ile Ile
    450             455             460
```

Gln Ala Thr Ile Glu Lys His Lys Gln Asn Ser Glu Thr Phe Lys Ala
465   470   475   480

Phe Gly Gly Ala Phe Ser Gln Asp Glu Asp Pro Ser Leu Ser Pro Asp
                    485   490   495

Met Pro Ile Thr Ser Thr Ser Pro Val Glu Pro Val Val Thr Thr Glu
                500   505   510

Gly Ser Ser Gly Ala Ala Gly Leu Glu Pro Arg Lys Leu Ser Ser Lys
            515   520   525

Thr Arg Arg Asp Lys Glu Lys Gln Ser Cys Lys Ser Cys Gly Glu Thr
        530   535   540

Phe Asn Ser Ile Thr Lys Arg Arg His His Cys Lys Leu Cys Gly Ala
545   550   555   560

Val Ile Cys Gly Lys Cys Ser Glu Phe Lys Ala Glu Asn Ser Arg Gln
                565   570   575

Ser Arg Val Cys Arg Asp Cys Phe Leu Thr Gln Pro Val Ala Pro Glu
            580   585   590

Ser Thr Glu Lys Thr Pro Thr Ala Asp Pro Gln Pro Ser Leu Leu Cys
        595   600   605

Gly Pro Leu Arg Leu Ser Glu Ser Gly Glu Thr Trp Ser Glu Val Trp
    610   615   620

Ala Ala Ile Pro Met Ser Asp Pro Gln Val Leu His Leu Gln Gly Gly
625   630   635   640

Ser Gln Asp Gly Arg Leu Pro Arg Thr Ile Pro Leu Pro Ser Cys Lys
                645   650   655

Leu Ser Val Pro Asp Pro Glu Glu Arg Leu Asp Ser Gly His Val Trp
                660   665   670

Lys Leu Gln Trp Ala Lys Gln Ser Trp Tyr Leu Ser Ala Ser Ser Ala
        675   680   685

Glu Leu Gln Gln Gln Trp Leu Glu Thr Leu Ser Thr Ala Ala His Gly
        690   695   700

Asp Thr Ala Gln Asp Ser Pro Gly Ala Leu Gln Leu Gln Val Pro Met
705   710   715   720

Gly Ala Ala Ala Pro
                725

<210>   31
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<212>   DNA
<213>   Homo sapiens

<220>
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<222>   (121)..(972)
<223>

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cgaccgcgcg ctcgccccgc cgctcctgct gcagccccag ggcccctcgc cgccgccacc   120

atg gac gcc atc aag aag aag atg cag atg ctg aag ctc gac aag gag   168
Met Asp Ala Ile Lys Lys Lys Met Gln Met Leu Lys Leu Asp Lys Glu
1   5   10   15

aac gcc ttg gat cga gct gag cag gcg gag gcc gac aag aag gcg gcg   216
Asn Ala Leu Asp Arg Ala Glu Gln Ala Glu Ala Asp Lys Lys Ala Ala
            20   25   30

gaa gac agg agc aag cag ctc gag gag gac atc gcg gcc aag gag aag   264
Glu Asp Arg Ser Lys Gln Leu Glu Glu Asp Ile Ala Ala Lys Glu Lys
        35   40   45

ttg ctg cgg gtg tcg gag gac gag cgg gac cgg gtg ctg gag gag ctg   312
Leu Leu Arg Val Ser Glu Asp Glu Arg Asp Arg Val Leu Glu Glu Leu
    50   55   60

cac aag gcg gag gac agc ctc ctg gcc gcc gaa gag gcc gcc gcc aag   360
His Lys Ala Glu Asp Ser Leu Leu Ala Ala Glu Glu Ala Ala Ala Lys
65   70   75   80

gct gaa gcc gac gta gct tct ctg aac aga cgc atc cag ctg gtt gag   408
Ala Glu Ala Asp Val Ala Ser Leu Asn Arg Arg Ile Gln Leu Val Glu
                85   90   95

gaa gag ttg gat cgt gcc cag gag cgt ctg gca aca gct ttg cag aag   456
Glu Glu Leu Asp Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys
            100   105   110

ctg gag gaa gct gag aag gca gca gat gag agt gag aga ggc atg aaa   504
Leu Glu Glu Ala Glu Lys Ala Ala Asp Glu Ser Glu Arg Gly Met Lys
        115   120   125

gtc att gag agt cga gcc caa aaa gat gaa gaa aaa atg gaa att cag   552
Val Ile Glu Ser Arg Ala Gln Lys Asp Glu Glu Lys Met Glu Ile Gln
    130   135   140

gag atc caa ctg aaa gag gca aag cac att gct gaa gat gcc gac cgc   600
Glu Ile Gln Leu Lys Glu Ala Lys His Ile Ala Glu Asp Ala Asp Arg
145   150   155   160

aaa tat gaa gag gtg gcc cgt aag ctg gtc atc att gag agc gac ctg   648
Lys Tyr Glu Glu Val Ala Arg Lys Leu Val Ile Ile Glu Ser Asp Leu

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gaa cgt gca gag gag cgg gct gag ctc tca gaa ggc caa gtc cga cag    696
Glu Arg Ala Glu Glu Arg Ala Glu Leu Ser Glu Gly Gln Val Arg Gln
                180                   185                   190

ctg gaa gaa caa tta aga ata atg gat cag acc ttg aaa gca tta atg    744
Leu Glu Glu Gln Leu Arg Ile Met Asp Gln Thr Leu Lys Ala Leu Met
            195                   200                   205

gct gca gag gat aag tac tcg cag aag gaa gac aga tat gag gaa gag    792
Ala Ala Glu Asp Lys Tyr Ser Gln Lys Glu Asp Arg Tyr Glu Glu Glu
        210                   215                   220

atc aag gtc ctt tcc gac aag ctg aag gag gct gag act cgg gct gag    840
Ile Lys Val Leu Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu
225                   230                   235                   240

ttt gcg gag agg tca gta act aaa ttg gag aaa agc att gat gac tta    888
Phe Ala Glu Arg Ser Val Thr Lys Leu Glu Lys Ser Ile Asp Asp Leu
                245                   250                   255

gaa gag aaa gtg gct cat gcc aaa gaa gaa aac ctt agt atg cat cag    936
Glu Glu Lys Val Ala His Ala Lys Glu Glu Asn Leu Ser Met His Gln
                260                   265                   270

atg ctg gat cag act tta ctg gag tta aac aac atg tgaaaacctc         982
Met Leu Asp Gln Thr Leu Leu Glu Leu Asn Asn Met
            275                   280
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cttagctgcg accacattct ttcattttgt tttgttttgt tttgttttta aacacctgct   1042

tacccctaa atgcaattta tttactttta ccactgtcac agaaacatcc acaagatacc   1102

agctaggtca gggggtgggg aaaacacata caaaaaggca agcccatgtc aggcgatcc    1162

tggttcaaat gtgccatttc ccgggttgat gctgccacac tttgtagaga gtttagcaac   1222

acagtgtgct tagtcagcgt aggaatcctc actaaagcag gagaagttcc attcaaagtg   1282

ccaatgatag agtcaacagg aaggttaatg ttggaaacac aatcaggtgt ggattggtgc   1342

tactttgaac aaaaggtccc cctgtggtct tttgttcaac attgtacaat gtagaactct   1402

gtccaacact aatttatttt gtcttgagtt ttactacaag atgagactat ggatcccgca   1462

tgcctgaatt cactaaagcc aagggtctgt aagccacgct gctcttctga gacttccatt   1522

cctttctgat tggcacacgt gcagctcatg acaatctgta ggataacaat cagtgtggat   1582

ttccactctt ttcagtcctt catgttaaag atttagacac cacatacaac tggtaaagga   1642

cgttttcttg agagttttaa ctatatgtaa acattgtata atgatatgga ataaaatgca   1702

cattgtagga cattttctaa aaaaaaaaaa aaaaaa                            1738
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<210> 32
<211> 284
<212> PRT
<213> Homo sapiens

<400> 32

Met Asp Ala Ile Lys Lys Lys Met Gln Met Leu Lys Leu Asp Lys Glu
1   5   10   15

Asn Ala Leu Asp Arg Ala Glu Gln Ala Glu Ala Asp Lys Lys Ala Ala
            20   25   30

Glu Asp Arg Ser Lys Gln Leu Glu Glu Asp Ile Ala Ala Lys Glu Lys
        35   40   45

Leu Leu Arg Val Ser Glu Asp Glu Arg Asp Arg Val Leu Glu Glu Leu
    50   55   60

His Lys Ala Glu Asp Ser Leu Leu Ala Ala Glu Glu Ala Ala Ala Lys
65   70   75   80

Ala Glu Ala Asp Val Ala Ser Leu Asn Arg Arg Ile Gln Leu Val Glu
            85   90   95

Glu Glu Leu Asp Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys
        100   105   110

Leu Glu Glu Ala Glu Lys Ala Ala Asp Glu Ser Glu Arg Gly Met Lys
        115   120   125

Val Ile Glu Ser Arg Ala Gln Lys Asp Glu Glu Lys Met Glu Ile Gln
    130   135   140

Glu Ile Gln Leu Lys Glu Ala Lys His Ile Ala Glu Asp Ala Asp Arg
145   150   155   160

Lys Tyr Glu Glu Val Ala Arg Lys Leu Val Ile Ile Glu Ser Asp Leu
            165   170   175

Glu Arg Ala Glu Glu Arg Ala Glu Leu Ser Glu Gly Gln Val Arg Gln
            180   185   190

Leu Glu Glu Gln Leu Arg Ile Met Asp Gln Thr Leu Lys Ala Leu Met
        195   200   205

Ala Ala Glu Asp Lys Tyr Ser Gln Lys Glu Asp Arg Tyr Glu Glu Glu
    210   215   220

Ile Lys Val Leu Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu
225   230   235   240

Phe Ala Glu Arg Ser Val Thr Lys Leu Glu Lys Ser Ile Asp Asp Leu
            245   250   255

```
Glu Glu Lys Val Ala His Ala Lys Glu Glu Asn Leu Ser Met His Gln
            260                 265                 270


Met Leu Asp Gln Thr Leu Leu Glu Leu Asn Asn Met
            275             280
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<210> 33
<211> 1138
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (231)..(965)
<223>

<400> 33

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cggcgcgcgc ccctcccagc cgcgcgcgcc cgcctgcggt ttgtctgcgc agccctggag      60

gctgcgactt ccggactgct cctggccgca gggggcgccg ccgtcgcaca gagaggcctg     120

ggcggggcgg accggcgctg ggcagccagg acagccgcgg cagccgggtc cgcagggcag     180

cagccggcct ctcccactgc agccctcccg cccgcctacc gtccggcgcg atg gcg       236
                                                         Met Ala
                                                         1


ggg agt agc tcg ctg gag gcg gtg cgc agg aag atc cgg agc ctg cag     284
Gly Ser Ser Ser Leu Glu Ala Val Arg Arg Lys Ile Arg Ser Leu Gln
        5                   10                  15

gag cag gcg gac gcc gct gag gag cgc gcg ggc acc ctg cag cgc gag     332
Glu Gln Ala Asp Ala Ala Glu Glu Arg Ala Gly Thr Leu Gln Arg Glu
    20                  25                  30

ctg gac cac gag agg aag ctg agg gag acc gct gaa gcc gac gta gct     380
Leu Asp His Glu Arg Lys Leu Arg Glu Thr Ala Glu Ala Asp Val Ala
35                  40                  45                  50

tct ctg aac aga cgc atc cag ctg gtt gag gaa gag ttg gat cgt gcc     428
Ser Leu Asn Arg Arg Ile Gln Leu Val Glu Glu Glu Leu Asp Arg Ala
                55                  60                  65

cag gag cgt ctg gca aca gct ttg cag aag ctg gag gaa gct gag aag     476
Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala Glu Lys
            70                  75                  80

gca gca gat gag agt gag aga ggc atg aaa gtc att gag agt cga gcc     524
Ala Ala Asp Glu Ser Glu Arg Gly Met Lys Val Ile Glu Ser Arg Ala
            85                  90                  95

caa aaa gat gaa gaa aaa atg gaa att cag gag atc caa ctg aaa gag     572
Gln Lys Asp Glu Glu Lys Met Glu Ile Gln Glu Ile Gln Leu Lys Glu
    100                 105                 110

gca aag cac att gct gaa gat gcc gac cgc aaa tat gaa gag gtg gcc     620
Ala Lys His Ile Ala Glu Asp Ala Asp Arg Lys Tyr Glu Glu Val Ala
115                 120                 125                 130

cgt aag ctg gtc atc att gag agc gac ctg gaa cgt gca gag gag cgg     668
Arg Lys Leu Val Ile Ile Glu Ser Asp Leu Glu Arg Ala Glu Glu Arg
```

```
gct gag ctc tca gaa ggc aaa tgt gcc gag ctt gaa gaa gaa ttg aaa      716
Ala Glu Leu Ser Glu Gly Lys Cys Ala Glu Leu Glu Glu Glu Leu Lys
            150                 155                 160

act gtg acg aac aac ttg aag tca ctg gag gct cag gct gag aag tac      764
Thr Val Thr Asn Asn Leu Lys Ser Leu Glu Ala Gln Ala Glu Lys Tyr
            165                 170                 175

tcg cag aag gaa gac aga tat gag gaa gag atc aag gtc ctt tcc gac      812
Ser Gln Lys Glu Asp Arg Tyr Glu Glu Glu Ile Lys Val Leu Ser Asp
        180                 185                 190

aag ctg aag gag gct gag act cgg gct gag ttt gcg gag agg tca gta      860
Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu Phe Ala Glu Arg Ser Val
195                 200                 205                 210

act aaa ttg gag aaa agc att gat gac tta gaa gat caa ctc tac cag      908
Thr Lys Leu Glu Lys Ser Ile Asp Asp Leu Glu Asp Gln Leu Tyr Gln
                215                 220                 225

caa ctt gag caa aat cgc cgc ctc act aat gaa cta aag ctg gcc ctg      956
Gln Leu Glu Gln Asn Arg Arg Leu Thr Asn Glu Leu Lys Leu Ala Leu
            230                 235                 240

aat gag gat taaacttaag agtgaaaaaa cttgggctga attctaggcg            1005
Asn Glu Asp
        245

tggagcccat gtgcagaaaa tctaagactg tcctaccctt caactaatag agttgaaaac   1065

agttgctttc tgcagaaatg caaatgcaag gaattggctg aaaggctggc cttgcctgct   1125

tgtttctcta tat                                                      1138
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<210>  34
<211>  245
<212>  PRT
<213>  Homo sapiens

<400>  34

Met Ala Gly Ser Ser Ser Leu Glu Ala Val Arg Arg Lys Ile Arg Ser
1               5                   10                  15


Leu Gln Glu Gln Ala Asp Ala Ala Glu Glu Arg Ala Gly Thr Leu Gln
            20                  25                  30


Arg Glu Leu Asp His Glu Arg Lys Leu Arg Glu Thr Ala Glu Ala Asp
        35                  40                  45


Val Ala Ser Leu Asn Arg Arg Ile Gln Leu Val Glu Glu Glu Leu Asp
        50                  55                  60


Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys Leu Glu Glu Ala
65                  70                  75                  80
```

Glu Lys Ala Ala Asp Glu Ser Glu Arg Gly Met Lys Val Ile Glu Ser
                85   90   95

Arg Ala Gln Lys Asp Glu Glu Lys Met Glu Ile Gln Glu Ile Gln Leu
            100   105   110

Lys Glu Ala Lys His Ile Ala Glu Asp Ala Asp Arg Lys Tyr Glu Glu
        115   120   125

Val Ala Arg Lys Leu Val Ile Ile Glu Ser Asp Leu Glu Arg Ala Glu
    130   135   140

Glu Arg Ala Glu Leu Ser Glu Gly Lys Cys Ala Glu Leu Glu Glu Glu
145   150   155   160

Leu Lys Thr Val Thr Asn Asn Leu Lys Ser Leu Glu Ala Gln Ala Glu
            165   170   175

Lys Tyr Ser Gln Lys Glu Asp Arg Tyr Glu Glu Glu Ile Lys Val Leu
        180   185   190

Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu Phe Ala Glu Arg
        195   200   205

Ser Val Thr Lys Leu Glu Lys Ser Ile Asp Asp Leu Glu Asp Gln Leu
    210   215   220

Tyr Gln Gln Leu Glu Gln Asn Arg Arg Leu Thr Asn Glu Leu Lys Leu
225   230   235   240

Ala Leu Asn Glu Asp
                245

<210> 35
<211> 1496
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (257)..(730)
<223>

<400> 35
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ggagcgcgcg ggcaccctgc agcgcgagct ggaccacgag aggaagctga gggagaccgc   120

tgaagccgac gtagcttctc tgaacagacg catccagctg gttgaggaag agttggatcg   180

tgcccaggag cgtctggcaa cagctttgca gaagctggag gaagctgaga aggcagcaga   240

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tgagagtgag agaggc atg aaa gtc att gag agt cga gcc caa aaa gat gaa      292
               Met Lys Val Ile Glu Ser Arg Ala Gln Lys Asp Glu
               1           5                   10

gaa aaa atg gaa att cag gag atc caa ctg aaa gag gca aag cac att        340
Glu Lys Met Glu Ile Gln Glu Ile Gln Leu Lys Glu Ala Lys His Ile
        15                  20                  25

gct gaa gat gcc gac cgc aaa tat gaa gag gtg gcc cgt aag ctg gtc        388
Ala Glu Asp Ala Asp Arg Lys Tyr Glu Glu Val Ala Arg Lys Leu Val
    30                  35                  40

atc att gag agc gac ctg gaa cgt gca gag gag cgg gct gag ctc tca        436
Ile Ile Glu Ser Asp Leu Glu Arg Ala Glu Glu Arg Ala Glu Leu Ser
45                  50                  55                  60

gaa ggc caa gtc cga cag ctg gaa gaa caa tta aga ata atg gat cag        484
Glu Gly Gln Val Arg Gln Leu Glu Glu Gln Leu Arg Ile Met Asp Gln
                65                  70                  75

acc ttg aaa gca tta atg gct gca gag gat aag tac tcg cag aag gaa        532
Thr Leu Lys Ala Leu Met Ala Ala Glu Asp Lys Tyr Ser Gln Lys Glu
            80                  85                  90

gac aga tat gag gaa gag atc aag gtc ctt tcc gac aag ctg aag gag        580
Asp Arg Tyr Glu Glu Glu Ile Lys Val Leu Ser Asp Lys Leu Lys Glu
        95                  100                 105

gct gag act cgg gct gag ttt gcg gag agg tca gta act aaa ttg gag        628
Ala Glu Thr Arg Ala Glu Phe Ala Glu Arg Ser Val Thr Lys Leu Glu
    110                 115                 120

aaa agc att gat gac tta gaa gag aaa gtg gct cat gcc aaa gaa gaa        676
Lys Ser Ile Asp Asp Leu Glu Glu Lys Val Ala His Ala Lys Glu Glu
125                 130                 135                 140

aac ctt agt atg cat cag atg ctg gat cag act tta ctg gag tta aac        724
Asn Leu Ser Met His Gln Met Leu Asp Gln Thr Leu Leu Glu Leu Asn
                145                 150                 155

aac atg tgaaaacctc cttagctgcg accacattct ttcattttgt tttgttttgt        780
Asn Met

tttgttttta aacacctgct taccccttaa atgcaattta tttactttta ccactgtcac     840

agaaacatcc acaagatacc agctaggtca gggggtgggg aaaacacata caaaaaggca     900

agcccatgtc agggcgatcc tggttcaaat gtgccatttc ccgggttgat gctgccacac     960

tttgtagaga gtttagcaac acagtgtgct tagtcagcgt aggaatcctc actaaagcag     1020

gagaagttcc attcaaagtg ccaatgatag agtcaacagg aaggttaatg ttggaaacac     1080

aatcaggtgt ggattggtgc tactttgaac aaaaggtccc cctgtggtct tttgttcaac     1140

attgtacaat gtagaactct gtccaacact aatttatttt gtcttgagtt ttactacaag     1200

atgagactat ggatcccgca tgcctgaatt cactaaagcc aagggtctgt aagccacgct     1260

gctcttctga gacttccatt cctttctgat tggcacacgt gcagctcatg acaatctgta     1320

ggataacaat cagtgtggat ttccactctt ttcagtcctt catgttaaag atttagacac     1380
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cacatacaac tggtaaagga cgttttcttg agagttttaa ctatatgtaa acattgtata   1440

atgatatgga ataaaatgca cattgtagga cattttctaa aaaaaaaaaa aaaaa   1496

<210>   36
<211>   158
<212>   PRT
<213>   Homo sapiens

<400>   36

Met Lys Val Ile Glu Ser Arg Ala Gln Lys Asp Glu Glu Lys Met Glu
1   5   10   15

Ile Gln Glu Ile Gln Leu Lys Glu Ala Lys His Ile Ala Glu Asp Ala
            20   25   30

Asp Arg Lys Tyr Glu Glu Val Ala Arg Lys Leu Val Ile Ile Glu Ser
        35   40   45

Asp Leu Glu Arg Ala Glu Glu Arg Ala Glu Leu Ser Glu Gly Gln Val
    50   55   60

Arg Gln Leu Glu Glu Gln Leu Arg Ile Met Asp Gln Thr Leu Lys Ala
65   70   75   80

Leu Met Ala Ala Glu Asp Lys Tyr Ser Gln Lys Glu Asp Arg Tyr Glu
                85   90   95

Glu Glu Ile Lys Val Leu Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg
            100   105   110

Ala Glu Phe Ala Glu Arg Ser Val Thr Lys Leu Glu Lys Ser Ile Asp
            115   120   125

Asp Leu Glu Glu Lys Val Ala His Ala Lys Glu Glu Asn Leu Ser Met
    130   135   140

His Gln Met Leu Asp Gln Thr Leu Leu Glu Leu Asn Asn Met
145   150   155

<210>   37
<211>   3606
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (174)..(3155)
<223>

<400>   37

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gcacgaggct cggcgggagg aggcggcggc ggaggaggag caggggggagg gctgtcaaat        60

tcgggagcca gatttttttcc cttctcctgg caatcccttc cgcttccccg gctcccggcg       120

tgacatctgc gggccgggga cctgcatgtg tgtgcgcgcg aaggagcgga aga atg          176
                                                              Met
                                                              1

gca gtg ctc aaa ctc acc gac cag cca cca ttg gtt cag gca atc ttc          224
Ala Val Leu Lys Leu Thr Asp Gln Pro Pro Leu Val Gln Ala Ile Phe
            5                   10                  15

agc ggt gat cca gag gag atc cgg atg ctc atc cat aaa act gaa gat          272
Ser Gly Asp Pro Glu Glu Ile Arg Met Leu Ile His Lys Thr Glu Asp
            20                  25                  30

gtg aat act ctg gat tct gag aaa cga acc cct ctt cat gtg gcc gca          320
Val Asn Thr Leu Asp Ser Glu Lys Arg Thr Pro Leu His Val Ala Ala
        35                  40                  45

ttt ctg gga gat gca gag atc att gaa ctc ctg att ttg tca gga gct          368
Phe Leu Gly Asp Ala Glu Ile Ile Glu Leu Leu Ile Leu Ser Gly Ala
50                  55                  60                  65

cgt gta aat gcc aag gac aac atg tgg ctg act cca ctg cac cgg gct          416
Arg Val Asn Ala Lys Asp Asn Met Trp Leu Thr Pro Leu His Arg Ala
                70                  75                  80

gtt gct tcc aga agc gaa gaa gca gta cag gtt ttg att aag cac tca          464
Val Ala Ser Arg Ser Glu Glu Ala Val Gln Val Leu Ile Lys His Ser
                85                  90                  95

gct gat gtc aat gca agg gac aag aac tgg cag acc cct ctt cat gtg          512
Ala Asp Val Asn Ala Arg Asp Lys Asn Trp Gln Thr Pro Leu His Val
            100                 105                 110

gca gca gcc aac aag gct gtc aaa tgt gca gaa gtg atc att ccc ctg          560
Ala Ala Ala Asn Lys Ala Val Lys Cys Ala Glu Val Ile Ile Pro Leu
        115                 120                 125

ctg agc agt gtc aat gtc tcc gac cga ggg ggg cgc aca gcc ttg cac          608
Leu Ser Ser Val Asn Val Ser Asp Arg Gly Gly Arg Thr Ala Leu His
130                 135                 140                 145

cat gcg gct ctg aac ggc cac gtg gag atg gtc aat tta ctc ttg gcc          656
His Ala Ala Leu Asn Gly His Val Glu Met Val Asn Leu Leu Leu Ala
                150                 155                 160

aaa ggg gca aat atc aat gca ttt gac aag aag gac cgg cgt gct ctg          704
Lys Gly Ala Asn Ile Asn Ala Phe Asp Lys Lys Asp Arg Arg Ala Leu
                165                 170                 175

cac tgg gca gca tac atg ggc cac ttg gat gtt gta gca ttg ctc att          752
His Trp Ala Ala Tyr Met Gly His Leu Asp Val Val Ala Leu Leu Ile
            180                 185                 190

aac cat ggc gca gaa gtg acc tgt aag gat aag aag ggt tat acc cct          800
Asn His Gly Ala Glu Val Thr Cys Lys Asp Lys Lys Gly Tyr Thr Pro
        195                 200                 205

ctg cat gct gca gcc tcc aat gga cag att aat gtt gtc aag cat ctc          848
Leu His Ala Ala Ala Ser Asn Gly Gln Ile Asn Val Val Lys His Leu
210                 215                 220                 225
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ctg aac ctg ggg gtg gag att gat gaa atc aat gtc tat gga aat aca        896
Leu Asn Leu Gly Val Glu Ile Asp Glu Ile Asn Val Tyr Gly Asn Thr
                230             235             240

gcg ctt cac atc gcc tgc tac aat gga cag gat gct gtg gtt aac gag        944
Ala Leu His Ile Ala Cys Tyr Asn Gly Gln Asp Ala Val Val Asn Glu
                245             250             255

ttg att gac tac ggt gct aac gtg aac cag cca aac aat aat ggg ttc        992
Leu Ile Asp Tyr Gly Ala Asn Val Asn Gln Pro Asn Asn Asn Gly Phe
                260             265             270

acc cct ttg cat ttt gct gct gcc tcc act cat ggt gct ttg tgt ctt        1040
Thr Pro Leu His Phe Ala Ala Ala Ser Thr His Gly Ala Leu Cys Leu
    275             280             285

gaa ttg tta gta aac aac ggg gca gat gtt aac att cag agt aaa gat        1088
Glu Leu Leu Val Asn Asn Gly Ala Asp Val Asn Ile Gln Ser Lys Asp
290             295             300             305

ggc aaa agt cca ctg cac atg aca gct gtc cat gga agg ttc aca cgg        1136
Gly Lys Ser Pro Leu His Met Thr Ala Val His Gly Arg Phe Thr Arg
                310             315             320

tca cag acc ctc att cag aat gga ggt gaa att gac tgt gtg gat aag        1184
Ser Gln Thr Leu Ile Gln Asn Gly Gly Glu Ile Asp Cys Val Asp Lys
                325             330             335

gac ggc aac act cct ctc cat gtg gct gca aga tac ggt cat gag ctt        1232
Asp Gly Asn Thr Pro Leu His Val Ala Ala Arg Tyr Gly His Glu Leu
                340             345             350

ttg att aac acc tta ata acc agc gga gct gac aca gcc aag tgt gga        1280
Leu Ile Asn Thr Leu Ile Thr Ser Gly Ala Asp Thr Ala Lys Cys Gly
                355             360             365

atc cat agc atg ttc cct tta cat tta gct gcc cta aat gct cac tct        1328
Ile His Ser Met Phe Pro Leu His Leu Ala Ala Leu Asn Ala His Ser
370             375             380             385

gac tgc tgc aga aag ttg tta tca tcg gga caa aag tat agc ata gta        1376
Asp Cys Cys Arg Lys Leu Leu Ser Ser Gly Gln Lys Tyr Ser Ile Val
                390             395             400

tcc ttg ttt agt aat gag cac gtg ctg tct gca ggc ttt gaa ata gac        1424
Ser Leu Phe Ser Asn Glu His Val Leu Ser Ala Gly Phe Glu Ile Asp
                405             410             415

acc cca gat aaa ttt gga aga acg tgc ctt cat gct gct gct gca gga        1472
Thr Pro Asp Lys Phe Gly Arg Thr Cys Leu His Ala Ala Ala Ala Gly
                420             425             430

ggt aat gtg gaa tgt ata aaa ctc ttg cag agc agc gga gca gat ttc        1520
Gly Asn Val Glu Cys Ile Lys Leu Leu Gln Ser Ser Gly Ala Asp Phe
    435             440             445

cat aaa aag gac aag tgt ggg agg acc cct ttg cac tat gca gct gcg        1568
His Lys Lys Asp Lys Cys Gly Arg Thr Pro Leu His Tyr Ala Ala Ala
450             455             460             465

aat tgt cat ttc cac tgt att gag aca tta gtg acc aca ggg gcc aac        1616
Asn Cys His Phe His Cys Ile Glu Thr Leu Val Thr Thr Gly Ala Asn
                470             475             480
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gtt aat gaa aca gat gac tgg gga cgc aca gct ttg cat tac gcc gct    1664
Val Asn Glu Thr Asp Asp Trp Gly Arg Thr Ala Leu His Tyr Ala Ala
            485                 490                 495

gca tca gac atg gat aga aat aag act atc tta gga aat gcc cat gat    1712
Ala Ser Asp Met Asp Arg Asn Lys Thr Ile Leu Gly Asn Ala His Asp
            500                 505                 510

aat tca gaa gaa ctt gaa aga gcc agg gag ctg aag gaa aag gaa gcc    1760
Asn Ser Glu Glu Leu Glu Arg Ala Arg Glu Leu Lys Glu Lys Glu Ala
            515                 520                 525

aca cta tgt cta gag ttt ctg ctt caa aat gat gca aat cca tct atc    1808
Thr Leu Cys Leu Glu Phe Leu Leu Gln Asn Asp Ala Asn Pro Ser Ile
530                 535                 540                 545

cgg gac aag gaa ggt tac aat agc ata cat tat gct gcc gcc tat ggg    1856
Arg Asp Lys Glu Gly Tyr Asn Ser Ile His Tyr Ala Ala Ala Tyr Gly
                550                 555                 560

cac agg cag tgt ctg gaa ttg ctt ttg gaa aga aca aac agt gga ttt    1904
His Arg Gln Cys Leu Glu Leu Leu Leu Glu Arg Thr Asn Ser Gly Phe
                565                 570                 575

gaa gaa tca gat tct ggt gct act aag agt cca ctc cac tta gct gcc    1952
Glu Glu Ser Asp Ser Gly Ala Thr Lys Ser Pro Leu His Leu Ala Ala
            580                 585                 590

tac aat ggg cac cat caa gcc ttg gaa gtc ctt ctg cag tcg ttg gtg    2000
Tyr Asn Gly His His Gln Ala Leu Glu Val Leu Leu Gln Ser Leu Val
            595                 600                 605

gac ctg gac atc agg gat gag aaa ggc cgc act gct ctg gat ctg gct    2048
Asp Leu Asp Ile Arg Asp Glu Lys Gly Arg Thr Ala Leu Asp Leu Ala
610                 615                 620                 625

gcc ttt aaa gga cac aca gaa tgt gtg gaa gcg ctt atc aat cag ggc    2096
Ala Phe Lys Gly His Thr Glu Cys Val Glu Ala Leu Ile Asn Gln Gly
                630                 635                 640

gca tcc atc ttt gtg aaa gac aat gta acc aaa aga acc cca ctt cat    2144
Ala Ser Ile Phe Val Lys Asp Asn Val Thr Lys Arg Thr Pro Leu His
                645                 650                 655

gcc tca gta att aat ggt cac aca ctg tgt tta cgg ctg ttg cta gaa    2192
Ala Ser Val Ile Asn Gly His Thr Leu Cys Leu Arg Leu Leu Leu Glu
            660                 665                 670

att gca gac aac ccg gag gcg gtc gat gtg aaa gat gcc aaa gga caa    2240
Ile Ala Asp Asn Pro Glu Ala Val Asp Val Lys Asp Ala Lys Gly Gln
    675                 680                 685

aca cca ctg atg ctt gca gta gca tat gga cat att gac gct gtt tca    2288
Thr Pro Leu Met Leu Ala Val Ala Tyr Gly His Ile Asp Ala Val Ser
690                 695                 700                 705

ttg tta ctt gaa aag gaa gcc aac gta gac act gtt gac atc cta gga    2336
Leu Leu Leu Glu Lys Glu Ala Asn Val Asp Thr Val Asp Ile Leu Gly
                710                 715                 720

tgc aca gct tta cac aga ggg att atg aca gga cac gag gaa tgt gtg    2384
Cys Thr Ala Leu His Arg Gly Ile Met Thr Gly His Glu Glu Cys Val
            725                 730                 735
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caa atg ctg ctg gaa caa gaa gtg tca att ctc tgt aaa gat tcc aga        2432
Gln Met Leu Leu Glu Gln Glu Val Ser Ile Leu Cys Lys Asp Ser Arg
        740                 745                 750

ggg agg acg ccc ttg cac tat gca gct gct cgt ggc cac gcc acg tgg        2480
Gly Arg Thr Pro Leu His Tyr Ala Ala Ala Arg Gly His Ala Thr Trp
        755                 760                 765

ctg agc gag ctg ctc caa atg gct ctt tct gag gag gac tgt tgt ttc        2528
Leu Ser Glu Leu Leu Gln Met Ala Leu Ser Glu Glu Asp Cys Cys Phe
770                 775                 780                 785

aaa gat aac caa ggc tac acg ccg ctg cac tgg gct tgt tac aat ggt        2576
Lys Asp Asn Gln Gly Tyr Thr Pro Leu His Trp Ala Cys Tyr Asn Gly
                790                 795                 800

aat gaa aac tgt ata gag gta ctt ttg gag caa aaa tgt ttt cgc aaa        2624
Asn Glu Asn Cys Ile Glu Val Leu Leu Glu Gln Lys Cys Phe Arg Lys
                805                 810                 815

ttt atc ggt aat ccc ttt act cca ctg cac tgt gca ata atc aat gat        2672
Phe Ile Gly Asn Pro Phe Thr Pro Leu His Cys Ala Ile Ile Asn Asp
                820                 825                 830

cat ggg aat tgt gca tca ttg ctg ctt ggg gcc ata gat tcc agt atc        2720
His Gly Asn Cys Ala Ser Leu Leu Leu Gly Ala Ile Asp Ser Ser Ile
        835                 840                 845

gtc agt tgt aga gat gac aaa ggc agg aca ccc ctt cat gcg gca gca        2768
Val Ser Cys Arg Asp Asp Lys Gly Arg Thr Pro Leu His Ala Ala Ala
850                 855                 860                 865

ttt gct gat cat gtg gag tgc ttg cag ctt ctt ctg aga cac agt gct        2816
Phe Ala Asp His Val Glu Cys Leu Gln Leu Leu Leu Arg His Ser Ala
                870                 875                 880

cca gtg aac gca gta gat aat tca ggg aaa aca gca ctg atg atg gct        2864
Pro Val Asn Ala Val Asp Asn Ser Gly Lys Thr Ala Leu Met Met Ala
                885                 890                 895

gct gag aat ggg cag gca ggc gct gtg gat att ttg gtg aac agt gcc        2912
Ala Glu Asn Gly Gln Ala Gly Ala Val Asp Ile Leu Val Asn Ser Ala
                900                 905                 910

cag gct gat ctg act gta aag gat aag gac ttg aat aca ccc tta cat        2960
Gln Ala Asp Leu Thr Val Lys Asp Lys Asp Leu Asn Thr Pro Leu His
        915                 920                 925

ttg gct tgt agt aaa ggt cat gaa aaa tgt gcc ttg tta ata ctt gac        3008
Leu Ala Cys Ser Lys Gly His Glu Lys Cys Ala Leu Leu Ile Leu Asp
930                 935                 940                 945

aag ata caa gac gag agc ctt att aat gaa aaa aat aat gca ctg cag        3056
Lys Ile Gln Asp Glu Ser Leu Ile Asn Glu Lys Asn Asn Ala Leu Gln
                950                 955                 960

aca ccc ctc cac gtc gct gcg cgc aat ggc tta aag gtg gta gtt gag        3104
Thr Pro Leu His Val Ala Ala Arg Asn Gly Leu Lys Val Val Val Glu
        965                 970                 975

gag ttg ctg gcc aaa ggg gcc tgt gta ctt gct gta gat gaa aat ggc        3152
Glu Leu Leu Ala Lys Gly Ala Cys Val Leu Ala Val Asp Glu Asn Gly
        980                 985                 990
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tgt taaccattca agatccaaga acatcggttg gctgcaaaac aggcaccctg   3205
Cys

agggaccaat tatgaatcag aatgcacttt atcccagcca cagaacgcaa agggttacac   3265

tctgcaggag ctgcggttgg ggaagggaaa gggagtaacc ggattcgcct tgcctgtctg   3325

tgattgggaa gcacgcaccc tttattttcc aactgggaac aagatactgg aaattcctct   3385

ttcccttaga aaacagaagg caagggtgtt ggctgtggaa attagaactg ggtaatagtt   3445

ctagagcact ttgaaattct ttcaggataa gtgttatacg aacacaaatg atttctttca   3505

ttgttaaatt gtgttcctat cattggtaac gccccaagta aagccttttt aattaaaaat   3565

ctctggatgc tataaaaaaa aaaaaaaaaa aaaaaaaaa a   3606

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<213>   Homo sapiens

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Met Ala Val Leu Lys Leu Thr Asp Gln Pro Pro Leu Val Gln Ala Ile
1   5   10   15

Phe Ser Gly Asp Pro Glu Glu Ile Arg Met Leu Ile His Lys Thr Glu
            20   25   30

Asp Val Asn Thr Leu Asp Ser Glu Lys Arg Thr Pro Leu His Val Ala
            35   40   45

Ala Phe Leu Gly Asp Ala Glu Ile Ile Glu Leu Leu Ile Leu Ser Gly
    50   55   60

Ala Arg Val Asn Ala Lys Asp Asn Met Trp Leu Thr Pro Leu His Arg
65   70   75   80

Ala Val Ala Ser Arg Ser Glu Glu Ala Val Gln Val Leu Ile Lys His
                85   90   95

Ser Ala Asp Val Asn Ala Arg Asp Lys Asn Trp Gln Thr Pro Leu His
            100   105   110

Val Ala Ala Ala Asn Lys Ala Val Lys Cys Ala Glu Val Ile Ile Pro
        115   120   125

Leu Leu Ser Ser Val Asn Val Ser Asp Arg Gly Gly Arg Thr Ala Leu
    130   135   140

His His Ala Ala Leu Asn Gly His Val Glu Met Val Asn Leu Leu Leu
145   150   155   160

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Ala Lys Gly Ala Asn Ile Asn Ala Phe Asp Lys Lys Asp Arg Arg Ala
            165                 170             175

Leu His Trp Ala Ala Tyr Met Gly His Leu Asp Val Val Ala Leu Leu
            180                 185             190

Ile Asn His Gly Ala Glu Val Thr Cys Lys Asp Lys Lys Gly Tyr Thr
            195                 200             205

Pro Leu His Ala Ala Ala Ser Asn Gly Gln Ile Asn Val Val Lys His
    210                 215             220

Leu Leu Asn Leu Gly Val Glu Ile Asp Glu Ile Asn Val Tyr Gly Asn
225                 230             235             240

Thr Ala Leu His Ile Ala Cys Tyr Asn Gly Gln Asp Ala Val Val Asn
            245                 250             255

Glu Leu Ile Asp Tyr Gly Ala Asn Val Asn Gln Pro Asn Asn Asn Gly
            260                 265             270

Phe Thr Pro Leu His Phe Ala Ala Ala Ser Thr His Gly Ala Leu Cys
            275                 280             285

Leu Glu Leu Leu Val Asn Asn Gly Ala Asp Val Asn Ile Gln Ser Lys
    290                 295             300

Asp Gly Lys Ser Pro Leu His Met Thr Ala Val His Gly Arg Phe Thr
305                 310             315             320

Arg Ser Gln Thr Leu Ile Gln Asn Gly Gly Glu Ile Asp Cys Val Asp
            325                 330             335

Lys Asp Gly Asn Thr Pro Leu His Val Ala Ala Arg Tyr Gly His Glu
            340                 345             350

Leu Leu Ile Asn Thr Leu Ile Thr Ser Gly Ala Asp Thr Ala Lys Cys
            355                 360             365

Gly Ile His Ser Met Phe Pro Leu His Leu Ala Ala Leu Asn Ala His
    370                 375             380

Ser Asp Cys Cys Arg Lys Leu Leu Ser Ser Gly Gln Lys Tyr Ser Ile
385                 390             395             400

Val Ser Leu Phe Ser Asn Glu His Val Leu Ser Ala Gly Phe Glu Ile
            405                 410             415
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Asp Thr Pro Asp Lys Phe Gly Arg Thr Cys Leu His Ala Ala Ala Ala
        420             425                 430

Gly Gly Asn Val Glu Cys Ile Lys Leu Leu Gln Ser Ser Gly Ala Asp
        435             440                 445

Phe His Lys Lys Asp Lys Cys Gly Arg Thr Pro Leu His Tyr Ala Ala
    450             455             460

Ala Asn Cys His Phe His Cys Ile Glu Thr Leu Val Thr Thr Gly Ala
465             470             475                 480

Asn Val Asn Glu Thr Asp Asp Trp Gly Arg Thr Ala Leu His Tyr Ala
            485             490             495

Ala Ala Ser Asp Met Asp Arg Asn Lys Thr Ile Leu Gly Asn Ala His
        500             505                 510

Asp Asn Ser Glu Glu Leu Glu Arg Ala Arg Glu Leu Lys Glu Lys Glu
        515             520                 525

Ala Thr Leu Cys Leu Glu Phe Leu Leu Gln Asn Asp Ala Asn Pro Ser
    530             535             540

Ile Arg Asp Lys Glu Gly Tyr Asn Ser Ile His Tyr Ala Ala Ala Tyr
545             550             555                 560

Gly His Arg Gln Cys Leu Glu Leu Leu Leu Glu Arg Thr Asn Ser Gly
            565             570             575

Phe Glu Glu Ser Asp Ser Gly Ala Thr Lys Ser Pro Leu His Leu Ala
        580             585             590

Ala Tyr Asn Gly His His Gln Ala Leu Glu Val Leu Leu Gln Ser Leu
    595             600             605

Val Asp Leu Asp Ile Arg Asp Glu Lys Gly Arg Thr Ala Leu Asp Leu
    610             615             620

Ala Ala Phe Lys Gly His Thr Glu Cys Val Glu Ala Leu Ile Asn Gln
625             630             635                 640

Gly Ala Ser Ile Phe Val Lys Asp Asn Val Thr Lys Arg Thr Pro Leu
            645             650             655

His Ala Ser Val Ile Asn Gly His Thr Leu Cys Leu Arg Leu Leu Leu
        660             665             670
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Glu Ile Ala Asp Asn Pro Glu Ala Val Asp Val Lys Asp Ala Lys Gly
    675             680             685

Gln Thr Pro Leu Met Leu Ala Val Ala Tyr Gly His Ile Asp Ala Val
    690             695             700

Ser Leu Leu Leu Glu Lys Glu Ala Asn Val Asp Thr Val Asp Ile Leu
705             710             715             720

Gly Cys Thr Ala Leu His Arg Gly Ile Met Thr Gly His Glu Glu Cys
            725             730             735

Val Gln Met Leu Leu Glu Gln Glu Val Ser Ile Leu Cys Lys Asp Ser
        740             745             750

Arg Gly Arg Thr Pro Leu His Tyr Ala Ala Ala Arg Gly His Ala Thr
    755             760             765

Trp Leu Ser Glu Leu Leu Gln Met Ala Leu Ser Glu Glu Asp Cys Cys
    770             775             780

Phe Lys Asp Asn Gln Gly Tyr Thr Pro Leu His Trp Ala Cys Tyr Asn
785             790             795             800

Gly Asn Glu Asn Cys Ile Glu Val Leu Leu Glu Gln Lys Cys Phe Arg
            805             810             815

Lys Phe Ile Gly Asn Pro Phe Thr Pro Leu His Cys Ala Ile Ile Asn
        820             825             830

Asp His Gly Asn Cys Ala Ser Leu Leu Leu Gly Ala Ile Asp Ser Ser
        835             840             845

Ile Val Ser Cys Arg Asp Asp Lys Gly Arg Thr Pro Leu His Ala Ala
    850             855             860

Ala Phe Ala Asp His Val Glu Cys Leu Gln Leu Leu Leu Arg His Ser
865             870             875             880

Ala Pro Val Asn Ala Val Asp Asn Ser Gly Lys Thr Ala Leu Met Met
            885             890             895

Ala Ala Glu Asn Gly Gln Ala Gly Ala Val Asp Ile Leu Val Asn Ser
            900             905             910

Ala Gln Ala Asp Leu Thr Val Lys Asp Lys Asp Leu Asn Thr Pro Leu
    915             920             925
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His Leu Ala Cys Ser Lys Gly His Glu Lys Cys Ala Leu Leu Ile Leu
    930             935             940

Asp Lys Ile Gln Asp Glu Ser Leu Ile Asn Glu Lys Asn Asn Ala Leu
945             950             955             960

Gln Thr Pro Leu His Val Ala Ala Arg Asn Gly Leu Lys Val Val Val
                965             970             975

Glu Glu Leu Leu Ala Lys Gly Ala Cys Val Leu Ala Val Asp Glu Asn
            980             985             990

Gly Cys


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tagcccctgt gggactgagg gtggaggctg ggggagtttg ggtgccatcc tccagtgaca     120

gatggatgga cctttcatct aagagaaagg aggagacacg ttggcaaatc agcctcaagc     180

ctaagattgc ttgtgaagca atcataagga ggaacaaaaa cagacacaaa aacagaggga     240

aagagtgaaa agacaagaag ggcgcaaact gtgacagact caccgcttca ctaactactc     300

acttaaactg gaagcaaa atg tcc cta aaa ttg cca agg aac tgg gat ttc      351
                     Met Ser Leu Lys Leu Pro Arg Asn Trp Asp Phe
                      1               5                      10

aac ctg aaa gtg gag gct gcg aaa ata gct cgg tca agg agt gtg atg     399
Asn Leu Lys Val Glu Ala Ala Lys Ile Ala Arg Ser Arg Ser Val Met
            15              20              25

act ggc gag cag atg gct gcc ttc cat cca tcg tcc acc ccc aac ccg     447
Thr Gly Glu Gln Met Ala Ala Phe His Pro Ser Ser Thr Pro Asn Pro
        30              35              40

ctg gag agg ccc atc aag atg ggc tgg ctg aag aag cag agg tcc atc     495
Leu Glu Arg Pro Ile Lys Met Gly Trp Leu Lys Lys Gln Arg Ser Ile
    45              50              55

gtg aag aac tgg cag cag agg tac ttt gtg ctg agg gcg cag cag ctc     543
Val Lys Asn Trp Gln Gln Arg Tyr Phe Val Leu Arg Ala Gln Gln Leu
60              65              70              75
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tac tac tac aag gat gaa gag gac acg aag ccc cag ggc tgc atg tat      591
Tyr Tyr Tyr Lys Asp Glu Glu Asp Thr Lys Pro Gln Gly Cys Met Tyr
                80                  85                  90

cta cca gga tgt aca atc aag gag atc gcc aca aac cca gaa gaa gct      639
Leu Pro Gly Cys Thr Ile Lys Glu Ile Ala Thr Asn Pro Glu Glu Ala
                95                  100                 105

ggg aag ttt gtc ttt gaa atc att cca gcc tca tgg gac cag aat cgc      687
Gly Lys Phe Val Phe Glu Ile Ile Pro Ala Ser Trp Asp Gln Asn Arg
            110                 115                 120

atg gga cag gac tcc tat gtc ctc atg gcc agc tct cag gcg gag atg      735
Met Gly Gln Asp Ser Tyr Val Leu Met Ala Ser Ser Gln Ala Glu Met
    125                 130                 135

gag gag tgg gtt aaa ttc ctc agg aga gtt gct ggc aca ccc tgt gga      783
Glu Glu Trp Val Lys Phe Leu Arg Arg Val Ala Gly Thr Pro Cys Gly
140                 145                 150                 155

gtg ttt ggc cag cgc ttg gat gag act gtg gcc tat gaa cag aaa ttc      831
Val Phe Gly Gln Arg Leu Asp Glu Thr Val Ala Tyr Glu Gln Lys Phe
                160                 165                 170

ggc ccc cat ctg gtg ccc atc ctg gtg gag aaa tgt gca gag ttc atc      879
Gly Pro His Leu Val Pro Ile Leu Val Glu Lys Cys Ala Glu Phe Ile
                175                 180                 185

ctg gag cac ggc cgg aat gaa gag ggc atc ttc cgt ctg cct ggg cag      927
Leu Glu His Gly Arg Asn Glu Glu Gly Ile Phe Arg Leu Pro Gly Gln
        190                 195                 200

gac aac ctg gtg aag cag ctg aga gac gct ttt gat gct ggg gag cgg      975
Asp Asn Leu Val Lys Gln Leu Arg Asp Ala Phe Asp Ala Gly Glu Arg
    205                 210                 215

ccc tcc ttt gac aga gac aca gat gtg cac act gtg gct tcc ctg tta     1023
Pro Ser Phe Asp Arg Asp Thr Asp Val His Thr Val Ala Ser Leu Leu
220                 225                 230                 235

aag ctc tac ctc cga gac ctc cca gag ccc gtg gtt ccc tgg agc cag     1071
Lys Leu Tyr Leu Arg Asp Leu Pro Glu Pro Val Val Pro Trp Ser Gln
                240                 245                 250

tac gaa ggg ttc ctg ctc tgt ggg cag ctc acg aat gcg gat gag gca     1119
Tyr Glu Gly Phe Leu Leu Cys Gly Gln Leu Thr Asn Ala Asp Glu Ala
            255                 260                 265

aag gct cag cag gag ttg atg aag cag ctc tcc atc ctt cct cgt gac     1167
Lys Ala Gln Gln Glu Leu Met Lys Gln Leu Ser Ile Leu Pro Arg Asp
        270                 275                 280

aac tat agt ctc ctg agc tac atc tgc agg ttc cta cat gaa ata cag     1215
Asn Tyr Ser Leu Leu Ser Tyr Ile Cys Arg Phe Leu His Glu Ile Gln
    285                 290                 295

ctg aac tgt gct gtt aac aag atg agt gtg gac aac ctg gct act gtg     1263
Leu Asn Cys Ala Val Asn Lys Met Ser Val Asp Asn Leu Ala Thr Val
300                 305                 310                 315

att ggt gtg aat ctc atc agg tcg aag gtc gaa gac cct gcc gtg atc     1311
Ile Gly Val Asn Leu Ile Arg Ser Lys Val Glu Asp Pro Ala Val Ile
                320                 325                 330
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atg aga ggg act cct cag atc caa aga gtg atg act atg atg atc aga    1359
Met Arg Gly Thr Pro Gln Ile Gln Arg Val Met Thr Met Met Ile Arg
        335             340             345

gac cat gaa gtc ctc ttc ccc aag tcc aag gat ata ccc ctg tca ccc    1407
Asp His Glu Val Leu Phe Pro Lys Ser Lys Asp Ile Pro Leu Ser Pro
        350             355             360

cct gcc cag aaa aat gac ccc aag aaa gct cca gtg gcc cga agc tct    1455
Pro Ala Gln Lys Asn Asp Pro Lys Lys Ala Pro Val Ala Arg Ser Ser
        365             370             375

gta ggc tgg gat gcc act gaa gac ctc cga att tct agg aca gac agc    1503
Val Gly Trp Asp Ala Thr Glu Asp Leu Arg Ile Ser Arg Thr Asp Ser
380             385             390             395

ttc agt agc atg aca agc gac tct gat aca acc agc ccc acc gga cag    1551
Phe Ser Ser Met Thr Ser Asp Ser Asp Thr Thr Ser Pro Thr Gly Gln
            400             405             410

cag ccg agc gat gcg ttt ccg gag gac agc agc aaa gta ccc agg gaa    1599
Gln Pro Ser Asp Ala Phe Pro Glu Asp Ser Ser Lys Val Pro Arg Glu
            415             420             425

aag cca gga gac tgg aaa atg caa tct cgt aaa agg act caa aca ctc    1647
Lys Pro Gly Asp Trp Lys Met Gln Ser Arg Lys Arg Thr Gln Thr Leu
        430             435             440

cct aac cgg aaa tgt ttc ttg aca tca gct ttt cag ggt gcc aac agc    1695
Pro Asn Arg Lys Cys Phe Leu Thr Ser Ala Phe Gln Gly Ala Asn Ser
    445             450             455

agc aaa atg gag atc ttt aaa aat gaa ttc tgg tcg cct tcc tca gag    1743
Ser Lys Met Glu Ile Phe Lys Asn Glu Phe Trp Ser Pro Ser Ser Glu
460             465             470             475

gct aag gca ggg gaa ggg cac agg aga acg atg tct caa gac ttg cgc    1791
Ala Lys Ala Gly Glu Gly His Arg Arg Thr Met Ser Gln Asp Leu Arg
            480             485             490

caa ctt tct gac tcc caa cgg act tcc acc tac gat aac gtc cct tcc    1839
Gln Leu Ser Asp Ser Gln Arg Thr Ser Thr Tyr Asp Asn Val Pro Ser
            495             500             505

ctg cca ggg tcc cct ggg gag gaa gcc agt gca ctc tct tcc caa gcc    1887
Leu Pro Gly Ser Pro Gly Glu Glu Ala Ser Ala Leu Ser Ser Gln Ala
            510             515             520

tgt gac tcc aag gga gat act ctt gcc agt cca aac tct gaa act ggg    1935
Cys Asp Ser Lys Gly Asp Thr Leu Ala Ser Pro Asn Ser Glu Thr Gly
    525             530             535

cct gga aaa aag aac tct gga gaa gag gaa att gat tct ttg cag agg    1983
Pro Gly Lys Lys Asn Ser Gly Glu Glu Glu Ile Asp Ser Leu Gln Arg
540             545             550             555

atg gtc caa gag cta cga aag gaa ata gaa aca cag aag caa atg tat    2031
Met Val Gln Glu Leu Arg Lys Glu Ile Glu Thr Gln Lys Gln Met Tyr
            560             565             570

gag gaa cag att aaa aac ctt gag aag gaa aat tat gac gtt tgg gct    2079
Glu Glu Gln Ile Lys Asn Leu Glu Lys Glu Asn Tyr Asp Val Trp Ala
        575             580             585
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aaa gtg gtg agg ctc aat gaa gaa ctg gag aag gaa aag aag aag tct      2127
Lys Val Val Arg Leu Asn Glu Glu Leu Glu Lys Glu Lys Lys Lys Ser
        590             595             600

gca gcc cta gag atc agc ctc cgc aac atg gag cgc tcc cgg gag gat      2175
Ala Ala Leu Glu Ile Ser Leu Arg Asn Met Glu Arg Ser Arg Glu Asp
        605             610             615

gtt gag aag agg aac aag gcc ttg gaa gaa gaa gtc aag gaa ttt gtc      2223
Val Glu Lys Arg Asn Lys Ala Leu Glu Glu Glu Val Lys Glu Phe Val
620             625             630             635

aaa tcc atg aag gaa ccc aag acc gag gct taagggtccc aggagtactg       2273
Lys Ser Met Lys Glu Pro Lys Thr Glu Ala
                640             645

cagggacagc cccagagagg cccaactctg gcccctttct cagtgctatc tgatgacggg   2333

gaaacaaaat tattctctga gagggaaagg acatttgagg gaaacatcaa atttccccat   2393

aaataaatga atggagtttg caggaaggtg agggtgagca gagatgtgtg tggacatctc   2453

tgaccatcca tcgctgtatt caaatggatt gttctattcc attctggtct caggcatgac   2513

cacgtccagt gaagacattt gaggcagcac atctcaggac ccaggcaata gactggcccc   2573

aactcaggct ggactaaggt gtgattaatt ctttgttttt tgtgtggaac agctcacctt   2633

gtcagacagc ctcagggcat ctctgagaca caggggcaga aaatgacatt catcttttga   2693

gtcctcatcc atggagtgct gtgtttgggg ggctgcatct gctgaagcga gaaccccatt   2753

ctgccacccc accaggatgc ccattctcca ggacttctcc aacttactat tagactaaac   2813

cagaacaagc aacaaactgt atttatgcaa gcaaaattga tgagaaaatt atattcaaat   2873

aaagcaaaat tt                                                        2885


<210>   40
<211>   645
<212>   PRT
<213>   Homo sapiens

<400>   40

Met Ser Leu Lys Leu Pro Arg Asn Trp Asp Phe Asn Leu Lys Val Glu
1               5               10              15


Ala Ala Lys Ile Ala Arg Ser Arg Ser Val Met Thr Gly Glu Gln Met
            20              25              30


Ala Ala Phe His Pro Ser Ser Thr Pro Asn Pro Leu Glu Arg Pro Ile
            35              40              45


Lys Met Gly Trp Leu Lys Lys Gln Arg Ser Ile Val Lys Asn Trp Gln
    50              55              60


Gln Arg Tyr Phe Val Leu Arg Ala Gln Gln Leu Tyr Tyr Tyr Lys Asp
65              70              75              80
```

```
Glu Glu Asp Thr Lys Pro Gln Gly Cys Met Tyr Leu Pro Gly Cys Thr
              85                      90                      95

Ile Lys Glu Ile Ala Thr Asn Pro Glu Glu Ala Gly Lys Phe Val Phe
              100                     105                     110

Glu Ile Ile Pro Ala Ser Trp Asp Gln Asn Arg Met Gly Gln Asp Ser
              115                     120                     125

Tyr Val Leu Met Ala Ser Ser Gln Ala Glu Met Glu Glu Trp Val Lys
              130                     135                     140

Phe Leu Arg Arg Val Ala Gly Thr Pro Cys Gly Val Phe Gly Gln Arg
145                     150                     155                     160

Leu Asp Glu Thr Val Ala Tyr Glu Gln Lys Phe Gly Pro His Leu Val
              165                     170                     175

Pro Ile Leu Val Glu Lys Cys Ala Glu Phe Ile Leu Glu His Gly Arg
              180                     185                     190

Asn Glu Glu Gly Ile Phe Arg Leu Pro Gly Gln Asp Asn Leu Val Lys
              195                     200                     205

Gln Leu Arg Asp Ala Phe Asp Ala Gly Glu Arg Pro Ser Phe Asp Arg
              210                     215                     220

Asp Thr Asp Val His Thr Val Ala Ser Leu Leu Lys Leu Tyr Leu Arg
225                     230                     235                     240

Asp Leu Pro Glu Pro Val Val Pro Trp Ser Gln Tyr Glu Gly Phe Leu
              245                     250                     255

Leu Cys Gly Gln Leu Thr Asn Ala Asp Glu Ala Lys Ala Gln Gln Glu
              260                     265                     270

Leu Met Lys Gln Leu Ser Ile Leu Pro Arg Asp Asn Tyr Ser Leu Leu
              275                     280                     285

Ser Tyr Ile Cys Arg Phe Leu His Glu Ile Gln Leu Asn Cys Ala Val
              290                     295                     300

Asn Lys Met Ser Val Asp Asn Leu Ala Thr Val Ile Gly Val Asn Leu
305                     310                     315                     320

Ile Arg Ser Lys Val Glu Asp Pro Ala Val Ile Met Arg Gly Thr Pro
              325                     330                     335
```

```
Gln Ile Gln Arg Val Met Thr Met Met Ile Arg Asp His Glu Val Leu
        340             345             350

Phe Pro Lys Ser Lys Asp Ile Pro Leu Ser Pro Pro Ala Gln Lys Asn
        355             360             365

Asp Pro Lys Lys Ala Pro Val Ala Arg Ser Ser Val Gly Trp Asp Ala
    370             375             380

Thr Glu Asp Leu Arg Ile Ser Arg Thr Asp Ser Phe Ser Ser Met Thr
385             390             395             400

Ser Asp Ser Asp Thr Thr Ser Pro Thr Gly Gln Gln Pro Ser Asp Ala
            405             410             415

Phe Pro Glu Asp Ser Ser Lys Val Pro Arg Glu Lys Pro Gly Asp Trp
        420             425             430

Lys Met Gln Ser Arg Lys Arg Thr Gln Thr Leu Pro Asn Arg Lys Cys
        435             440             445

Phe Leu Thr Ser Ala Phe Gln Gly Ala Asn Ser Ser Lys Met Glu Ile
    450             455             460

Phe Lys Asn Glu Phe Trp Ser Pro Ser Ser Glu Ala Lys Ala Gly Glu
465             470             475             480

Gly His Arg Arg Thr Met Ser Gln Asp Leu Arg Gln Leu Ser Asp Ser
            485             490             495

Gln Arg Thr Ser Thr Tyr Asp Asn Val Pro Ser Leu Pro Gly Ser Pro
        500             505             510

Gly Glu Glu Ala Ser Ala Leu Ser Ser Gln Ala Cys Asp Ser Lys Gly
        515             520             525

Asp Thr Leu Ala Ser Pro Asn Ser Glu Thr Gly Pro Gly Lys Lys Asn
    530             535             540

Ser Gly Glu Glu Glu Ile Asp Ser Leu Gln Arg Met Val Gln Glu Leu
545             550             555             560

Arg Lys Glu Ile Glu Thr Gln Lys Gln Met Tyr Glu Glu Gln Ile Lys
            565             570             575

Asn Leu Glu Lys Glu Asn Tyr Asp Val Trp Ala Lys Val Val Arg Leu
        580             585             590
```

```
Asn Glu Glu Leu Glu Lys Glu Lys Lys Lys Ser Ala Ala Leu Glu Ile
        595             600             605

Ser Leu Arg Asn Met Glu Arg Ser Arg Glu Asp Val Glu Lys Arg Asn
        610             615             620

Lys Ala Leu Glu Glu Glu Val Lys Glu Phe Val Lys Ser Met Lys Glu
625             630             635             640

Pro Lys Thr Glu Ala
                645


<210>   41
<211>   1417
<212>   DNA
<213>   Homo sapiens

<220>
<221>   CDS
<222>   (67)..(624)
<223>


<400>   41
tgtggagtgg gggaagttga ttgggtctag accaaagaac tttgaggaac ttgcccagag        60

ccctgc atg cat cag acc tac agc aga cat tgc agg cct gaa gaa agc         108
       Met His Gln Thr Tyr Ser Arg His Cys Arg Pro Glu Glu Ser
         1           5                  10

acc ttt tct gct gcc atg aca acc atg caa gga atg gaa cag gcc atg        156
Thr Phe Ser Ala Ala Met Thr Thr Met Gln Gly Met Glu Gln Ala Met
15                  20              25                  30

cca ggg gct ggc cct ggt gtg ccc cag ctg gga aac atg gct gtc ata        204
Pro Gly Ala Gly Pro Gly Val Pro Gln Leu Gly Asn Met Ala Val Ile
                35                  40                  45

cat tca cat ctg tgg aaa gga ttg caa gag aag ttc ttg aag gga gaa        252
His Ser His Leu Trp Lys Gly Leu Gln Glu Lys Phe Leu Lys Gly Glu
                50                  55                  60

ccc aaa gtc ctt ggg gtt gtg cag att ctg act gcc ctg atg agc ctt        300
Pro Lys Val Leu Gly Val Val Gln Ile Leu Thr Ala Leu Met Ser Leu
                65                  70                  75

agc atg gga ata aca atg atg tgt atg gca tct aat act tat gga agt        348
Ser Met Gly Ile Thr Met Met Cys Met Ala Ser Asn Thr Tyr Gly Ser
        80                  85                  90

aac cct att tcc gtg tat atc ggg tac aca att tgg ggg tca gta atg        396
Asn Pro Ile Ser Val Tyr Ile Gly Tyr Thr Ile Trp Gly Ser Val Met
95                  100                 105                 110

ttt att att tca gga tcc ttg tca att gca gca gga att aga act aca        444
Phe Ile Ile Ser Gly Ser Leu Ser Ile Ala Ala Gly Ile Arg Thr Thr
                115                 120                 125
```

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aaa ggc ctg ggt ctg gat ggc atg gtg ctc ctc tta agt gtg ctg gaa      492
Lys Gly Leu Gly Leu Asp Gly Met Val Leu Leu Leu Ser Val Leu Glu
            130                 135                 140

ttc tgc att gct gtg tcc ctc tct gcc ttt gga tgt aaa gtg ctc tgt      540
Phe Cys Ile Ala Val Ser Leu Ser Ala Phe Gly Cys Lys Val Leu Cys
            145                 150                 155

tgt acc cct ggt ggg gtt gtg tta att ctg cca tca cat tct cac atg      588
Cys Thr Pro Gly Gly Val Val Leu Ile Leu Pro Ser His Ser His Met
        160                 165                 170

gca gaa aca gca tct ccc aca cca ctt aat gag gtt tgaggccacc           634
Ala Glu Thr Ala Ser Pro Thr Pro Leu Asn Glu Val
175                 180                 185

aaaagatcaa cagacaaatg ctccagaaat ctatgctgac tgtgacacaa gagcctcaca    694

tgagaaatta ccagtatcca acttcgatac tgatagactt gttgatatta ttattatatg    754

taatccaatt atgaactgtg tgtgtataga gagataataa attcaaaatt atgttctcat    814

ttttttccct ggaactcaat aactcatttc actggctctt tatcgagagt actagaagtt    874

aaattaataa ataatgcatt taatgaggca acagcacttg aaagtttttc attcatcata    934

agaactttat ataaaggcat tacattggca aataaggttt ggaagcagaa gagcaaaaaa    994

aagatattgt taaaatgagg cctccatgca aacacatac ttccctccca tttatttaac    1054

tttttttttc tcctacctat ggggaccaaa gtgctttttc cttcaggaag tggagatgca    1114

tggccatctc cccctccctt tttccttctc ctgcttttct ttccccatag aaagtacctt    1174

gaagtagcac agcccgtcct tgcatgtgca cgagctatca tttgagtaaa agtatacatg    1234

gagtaaaaat catattaagc atcagattca acttatattt tctatttcat cttcttcctt    1294

tcccttctcc caccttctac tgggcataat tatatcttaa tcatatatgg aaatgtgcaa    1354

catatggtat ttgttaaata cgtttgtttt tattgcagag caaaaataaa tcaaattaga    1414

agc                                                                   1417


<210>  42
<211>  186
<212>  PRT
<213>  Homo sapiens

<400>  42

Met His Gln Thr Tyr Ser Arg His Cys Arg Pro Glu Glu Ser Thr Phe
1                 5                  10                  15


Ser Ala Ala Met Thr Thr Met Gln Gly Met Glu Gln Ala Met Pro Gly
            20                  25                  30


Ala Gly Pro Gly Val Pro Gln Leu Gly Asn Met Ala Val Ile His Ser
        35                  40                  45
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His Leu Trp Lys Gly Leu Gln Glu Lys Phe Leu Lys Gly Glu Pro Lys
    50              55              60

Val Leu Gly Val Val Gln Ile Leu Thr Ala Leu Met Ser Leu Ser Met
65              70              75              80

Gly Ile Thr Met Met Cys Met Ala Ser Asn Thr Tyr Gly Ser Asn Pro
                85              90              95

Ile Ser Val Tyr Ile Gly Tyr Thr Ile Trp Gly Ser Val Met Phe Ile
            100             105             110

Ile Ser Gly Ser Leu Ser Ile Ala Ala Gly Ile Arg Thr Thr Lys Gly
        115             120             125

Leu Gly Leu Asp Gly Met Val Leu Leu Leu Ser Val Leu Glu Phe Cys
    130             135             140

Ile Ala Val Ser Leu Ser Ala Phe Gly Cys Lys Val Leu Cys Cys Thr
145             150             155             160

Pro Gly Gly Val Val Leu Ile Leu Pro Ser His Ser His Met Ala Glu
            165             170             175

Thr Ala Ser Pro Thr Pro Leu Asn Glu Val
            180             185
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<210> 43
<211> 5479
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (329)..(2245)
<223>

<400> 43

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tggaccggtc cggattcccg ggatcgggaa cccgtcagga aggacataaa caaaacaaac      60

ccgaggcagc atggagaggg gccgtggccc ctgcagcgga accggaccca gtccctgagc     120

cgcccctaca cccacagaca gcatcgcaca gaattatttt aaaaaaaagc agtgatccaa     180

gcaattgaat tggaagcact ctggggaaac tgctgtttat tgtggaaat catcttcgat      240

cttggaattg aaagtaaagc tggaaaggaa tttacaaaca agaaaaaaaa gaagtttgga     300

atcggattca caggatctgg gcttggaa atg cct cag cct agt gta agc gga      352
                                 Met Pro Gln Pro Ser Val Ser Gly
                                  1               5

atg gat ccg cct ttc ggg gat gcc ttt cga agc cac acc ttt tcg gaa     400
Met Asp Pro Pro Phe Gly Asp Ala Phe Arg Ser His Thr Phe Ser Glu
```

```
caa act ctg atg agc aca gat ctc tta gca aac agt tcg gat cca gat        448
Gln Thr Leu Met Ser Thr Asp Leu Leu Ala Asn Ser Ser Asp Pro Asp
25              30                  35                  40

ttc atg tat gaa ctg gat aga gag atg aac tac caa cag aat cct aga        496
Phe Met Tyr Glu Leu Asp Arg Glu Met Asn Tyr Gln Gln Asn Pro Arg
                45                  50                  55

gac aac ttt ctt tct ttg gag gac tgc aaa gac att gaa aat ctg gag        544
Asp Asn Phe Leu Ser Leu Glu Asp Cys Lys Asp Ile Glu Asn Leu Glu
                60                  65                  70

tct ttc aca gat gtc ctg gat aat gag ggt gct tta acc tca aac tgg        592
Ser Phe Thr Asp Val Leu Asp Asn Glu Gly Ala Leu Thr Ser Asn Trp
            75                  80                  85

gaa cag tgg gat aca tac tgt gaa gac cta acg aaa tat acc aaa cta        640
Glu Gln Trp Asp Thr Tyr Cys Glu Asp Leu Thr Lys Tyr Thr Lys Leu
            90                  95                  100

acc agc tgt gac atc tgg gga aca aaa gaa gtg gat tac ttg ggt ctt        688
Thr Ser Cys Asp Ile Trp Gly Thr Lys Glu Val Asp Tyr Leu Gly Leu
105                 110                 115                 120

gat gac ttt tct agt cct tac caa gat gaa gag gtt ata agt aaa act        736
Asp Asp Phe Ser Ser Pro Tyr Gln Asp Glu Glu Val Ile Ser Lys Thr
                125                 130                 135

cca act tta gct caa ctt aat agt gag gac tca cag tct gtt tct gat        784
Pro Thr Leu Ala Gln Leu Asn Ser Glu Asp Ser Gln Ser Val Ser Asp
            140                 145                 150

tcc ctt tat tac ccc gat tca ctt ttc agt gtc aaa caa aat ccc tta        832
Ser Leu Tyr Tyr Pro Asp Ser Leu Phe Ser Val Lys Gln Asn Pro Leu
            155                 160                 165

ccc tct tca ttc cct ggt aaa aag atc aca agc aga gca gct gct cct        880
Pro Ser Ser Phe Pro Gly Lys Lys Ile Thr Ser Arg Ala Ala Ala Pro
170                 175                 180

gtg tgt tct tct aag act ctg cag gct gag gtc cct ttg tca gac tgt        928
Val Cys Ser Ser Lys Thr Leu Gln Ala Glu Val Pro Leu Ser Asp Cys
185                 190                 195                 200

gtc caa aaa gca agt aaa ccc cct tca agc aca caa atc atg gtg aag        976
Val Gln Lys Ala Ser Lys Pro Pro Ser Ser Thr Gln Ile Met Val Lys
                205                 210                 215

acc aac atg tat cat aat gaa aag gtg aac ttt cat gtt gaa tgt aaa        1024
Thr Asn Met Tyr His Asn Glu Lys Val Asn Phe His Val Glu Cys Lys
                220                 225                 230

gac tat gta aaa aag gca aag gta aag atc aac cca gtg caa cag agc        1072
Asp Tyr Val Lys Lys Ala Lys Val Lys Ile Asn Pro Val Gln Gln Ser
                235                 240                 245

cgg ccc ttg ttg agc cag att cac aca gat gca gca aag gag aac acc        1120
Arg Pro Leu Leu Ser Gln Ile His Thr Asp Ala Ala Lys Glu Asn Thr
250                 255                 260

tgc tac tgt ggt gca gtg gca aag aga caa gag aaa aaa ggg atg gag        1168
Cys Tyr Cys Gly Ala Val Ala Lys Arg Gln Glu Lys Lys Gly Met Glu
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```
..t ctt caa ggt cat gcc act ccc gct ttg cct ttt aaa gaa acc cag      1216
Pro Leu Gln Gly His Ala Thr Pro Ala Leu Pro Phe Lys Glu Thr Gln
                285                 290                 295

gaa cta tta cta agt ccc ctg ccc cag gaa ggt cct ggg tca ctt gca      1264
Glu Leu Leu Leu Ser Pro Leu Pro Gln Glu Gly Pro Gly Ser Leu Ala
                300                 305                 310

gca gga gag agc agc agt ctt tct gcc agt aca tca gtc tca gat tca      1312
Ala Gly Glu Ser Ser Ser Leu Ser Ala Ser Thr Ser Val Ser Asp Ser
                315                 320                 325

tcc cag aaa aaa gaa gag cac aat tat tct ctt ttt gtc tcc gac aac      1360
Ser Gln Lys Lys Glu Glu His Asn Tyr Ser Leu Phe Val Ser Asp Asn
                330                 335                 340

ttg ggt gaa cag cca act aaa tgc agt cct gaa gaa gat gag gag gac      1408
Leu Gly Glu Gln Pro Thr Lys Cys Ser Pro Glu Glu Asp Glu Glu Asp
345                 350                 355                 360

gag gag gat gtt gat gat gag gac cat gat gaa gga ttc ggc agt gag      1456
Glu Glu Asp Val Asp Asp Glu Asp His Asp Glu Gly Phe Gly Ser Glu
                365                 370                 375

cat gaa ctg tct gaa aat gag gag gag gaa gaa gag gaa gag gat tat      1504
His Glu Leu Ser Glu Asn Glu Glu Glu Glu Glu Glu Glu Glu Asp Tyr
                380                 385                 390

gaa gat gac aag gat gat gat att agt gat act ttc tct gaa cca ggc      1552
Glu Asp Asp Lys Asp Asp Asp Ile Ser Asp Thr Phe Ser Glu Pro Gly
                395                 400                 405

tat gaa aat gat tct gta gaa gac ctg aag gag gtg act tca ata tct      1600
Tyr Glu Asn Asp Ser Val Glu Asp Leu Lys Glu Val Thr Ser Ile Ser
                410                 415                 420

tca cgg aag aga ggt aaa aga aga tac ttc tgg gag tat agt gaa caa      1648
Ser Arg Lys Arg Gly Lys Arg Arg Tyr Phe Trp Glu Tyr Ser Glu Gln
425                 430                 435                 440

ctt aca cca tca cag caa gag agg atg ctg aga cca tct gag tgg aac      1696
Leu Thr Pro Ser Gln Gln Glu Arg Met Leu Arg Pro Ser Glu Trp Asn
                445                 450                 455

cga gat act ttg cca agt aat atg tat cag aaa aat ggc tta cat cat      1744
Arg Asp Thr Leu Pro Ser Asn Met Tyr Gln Lys Asn Gly Leu His His
                460                 465                 470

gga aaa tat gca gta aag aag tca cgg aga act gat gta gaa gac ctg      1792
Gly Lys Tyr Ala Val Lys Lys Ser Arg Arg Thr Asp Val Glu Asp Leu
                475                 480                 485

act cca aat cct aaa aaa ctc ctc cag ata ggc aat gaa ctt cgg aaa      1840
Thr Pro Asn Pro Lys Lys Leu Leu Gln Ile Gly Asn Glu Leu Arg Lys
                490                 495                 500

ctg aat aag gtg att agt gac ctg act cca gtc agt gag ctt ccc tta      1888
Leu Asn Lys Val Ile Ser Asp Leu Thr Pro Val Ser Glu Leu Pro Leu
..5                 510                 515                 520

aca gcc cga cca agg tca agg aag gaa aaa aat aag ctg gct ttc aga      1936
Thr Ala Arg Pro Arg Ser Arg Lys Glu Lys Asn Lys Leu Ala Phe Arg
```

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gct tgt cgg tta aag aag aaa gcc cag tat gaa gct aat aaa gtg aaa    1984
Ala Cys Arg Leu Lys Lys Lys Ala Gln Tyr Glu Ala Asn Lys Val Lys
            540                 545                 550

tta tgg ggc ctc aac aca gaa tat gat aat tta ttg ttt gta atc aac    2032
Leu Trp Gly Leu Asn Thr Glu Tyr Asp Asn Leu Leu Phe Val Ile Asn
            555                 560                 565

tcc atc aag caa gag att gta aac cgg gta cag aat cca aga gat gag    2080
Ser Ile Lys Gln Glu Ile Val Asn Arg Val Gln Asn Pro Arg Asp Glu
        570                 575                 580

aga gga ccc aac atg ggg cag aag ctt gaa atc ctc att aaa gat act    2128
Arg Gly Pro Asn Met Gly Gln Lys Leu Glu Ile Leu Ile Lys Asp Thr
585                 590                 595                 600

ctc ggt cta cca gtt gct ggg caa acc tca gaa ttt gtt aac caa gtg    2176
Leu Gly Leu Pro Val Ala Gly Gln Thr Ser Glu Phe Val Asn Gln Val
                605                 610                 615

tta gag aag act gca gaa ggg aat ccc act gga ggc ctt gta gga tta    2224
Leu Glu Lys Thr Ala Glu Gly Asn Pro Thr Gly Gly Leu Val Gly Leu
            620                 625                 630

agg ata cca aca tca aag gtg taatcagcct cattggacca ctggtcagaa    2275
Arg Ile Pro Thr Ser Lys Val
            635

atgtctgcgt tttgtcacgt tatccattgt aaattttcat tctgttttgc atgtcagtta  2335

gcattatgta aacatttaca attaggttac attgttttaa gaactaagta gcataagtga  2395

agcatgatcc aaaatacttg attattgcat tttcagagca taaaccatga ttaaaactgc  2455

tactggcatc agaattgaaa atcatatgtt taagtaaatg ttaggtacag attacaaaaa  2515

tctgttaaag caaacatttt ggaggagtg aaatagtaaa atgccaagta ttgtggcaga  2575

tttatgctct gaaccacaca aaaaaattga ggaagcattt ttttaaacag tcggtttaaa  2635

ttgtttttag aattattgct ttttgttcta attttccaca accattaatc tcacttgtat  2695

atggcacacc cagcacttgt gcctgtgggc catattagat gttcattgtc agagctcaag  2755

atgatatata taaatatata tatatatata tatatataca cacacacaca caaatgtctg  2815

tgcaagtaag aaaaaaaaag catattcttt gtgccttgta ttttggggaa actctaaaac  2875

tggtaatatt ttgtatgatg aaaaccctaa tgagaaaaaa caagatatat agatggaaaa  2935

attatggggt ttaaatgttt ttttgttcca actctttttc agatttttttg aatgtatata  2995

ggactatgtt gaaatgtaga tatatgccac agagtctgtg tattgtataa aaaacaaaac  3055

aaaaaacaac aaaaaaaaga tggctctaga aaactcatat ttcggtactt gaccggaaga  3115

agacaaatac ttgcacatta ttgcgattgt tttatttttt gtaccaaaga caaatgcaac  3175

tgatatggca aactgccagt ctaagtaaag ttttgcacag cttacatgat actgtatgaa  3235

tgtatgaaaa aaaaggagaa aaaaaagaaa aaaaaggtc agggttaggg atcttactga   3295
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```
actgtgaatt ttatttctgt ttgggtccaa ttatctacag aaggagcatc catacataca      3355

aatattattt tgctgttcct ctagttcgct tccatagtag ataagttggt ggccatttag      3415

atgtctttta tttctgcact tattgtagga aattttaata tatttcattt tagtaagcta      3475

ttgataaaat agtttttgac tttgaaaatt aaaatgttta tttagcttat tgtagtatac      3535

ttccaccaga caacaaaata gattattttt attgtattat gtatatatat atatgtaaag      3595

aaagaaaaaa gctaaaaata tctaattctt tagttgccac ttttccgatt gatgtattat      3655

tgtgcatgta atattttcaa agatcaacac aggctaaaac aaaaacaatt tatagatttt      3715

tatattttg tacaggtatt ttcaaactag cttcttcaaa cttaacatgt gacttattct      3775

tctatagttt ctagaattga gaaacattaa cacatttagt ttttaggtgc tctttttgc       3835

tcatataaaa cagcttcatt agtcagtgtt ttaactgtgt tcaagcttta cctcttgatg      3895

agaaatttct tatgtcaagg cagcattata aaccttcccc cacagatttt tccatcctgt      3955

ctctacttac tgttttattc tcaaatcttg tgctttgaac tctgaaaact ggtggcttaa      4015

aaactaaaaa aagaaaaaaa gcatatttag caaggaaaaa aataccaaaa tttcaggcat      4075

agctgctgga aaaattatct atttctccat tacccactgt aggatttctt ttttaattat      4135

actttgacta taaagtgtca aagtataatt tgttcttttc ttttactttg ttaccccatt      4195

tgtaagctat agcatatgaa gctatatata tagcttgtga aggtttgatc tagaacaccc      4255

agtaacaaat gaacaatgtt gcttacctgc ttctttgaca tcttaaaaaa gaaatccaag      4315

gaggattgta aggattgtct taccacctta gctgaactgt gatgcacaag atttttctat      4375

gtgtttggtg gaaatgtacc tggtttgtac attcacgcta aacagatgat aagctcaagt      4435

ctgatggttt aatagaatgt aagttcatcg tttaaagctt ttcctttta ggttggagaa        4495

ggcaaaacac aggcttgcaa gttggaagta tatgaagtct tgacagagtg tgtctggtaa      4555

attgaaaagt gtttcaaact atggcagttt tgcaatcagg tgaaaatcac ctcatgatat      4615

tcagctgata aggtttataa aattgcccct ttctagctgc tctgttagga attctggttt      4675

ttgatacttt tttcctgtct gcaaaccaga atttgatttt ttggtcttgc atttcaaaaa      4735

aaaaaagact ttgaatctgt ttagtagatt ccatatcttt gagtttcagt gttttatatg      4795

tactacttaa gttaaatagt taaaagcttt taaatagttg agcttttaa tgttgacact        4855

ttattttgta cctatttata tatgtatgta tatcttagaa aagcactttg ttaaaaaaaa      4915

attgcatttt atatgattcc tgccatttgc tgctaaatct gggctggtca gaatgctgca      4975

gcgatacttg atctatataa aaacctggca gtaaaatgta gagtgaaagt taaatcctct      5035

tgctgtttta actttatcat aaagatgaca taggcaagct gtgcagcttt acattttaac      5095

caggggactc tgtggcattt aaaaccgtct agaaatggtt gtactttaat gccagtaata      5155

atctgcttcc tctattgtca ttaaaatata tacgtttagt gtatcacaca aaccaatctt      5215
```

```
ataagggtaa tgtaaaaacc ccaacaattg tacatgttct gttttttgaaa attgtggcat      5275

gtattttttgg gtgaagatca ttagagaaga gttctctaaa ggttttctgt gttcatacat      5335

ggtatacaga tagctcataa tgaagtccag aatcttactt ttaagtgaag gcattgtgaa      5395

ttcacctcaa gtaaacccat tgttccaaag caattataaa ctttgactct agtactacta      5455

tgatttaaaa aaaaaaaaaa aaaa                                             5479
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<210> 44
<211> 639
<212> PRT
<213> Homo sapiens

<400> 44

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Met Pro Gln Pro Ser Val Ser Gly Met Asp Pro Pro Phe Gly Asp Ala
1               5                   10                  15


Phe Arg Ser His Thr Phe Ser Glu Gln Thr Leu Met Ser Thr Asp Leu
            20                  25                  30


Leu Ala Asn Ser Ser Asp Pro Asp Phe Met Tyr Glu Leu Asp Arg Glu
            35                  40                  45


Met Asn Tyr Gln Gln Asn Pro Arg Asp Asn Phe Leu Ser Leu Glu Asp
        50                  55                  60


Cys Lys Asp Ile Glu Asn Leu Glu Ser Phe Thr Asp Val Leu Asp Asn
65                  70                  75                  80


Glu Gly Ala Leu Thr Ser Asn Trp Glu Gln Trp Asp Thr Tyr Cys Glu
                85                  90                  95


Asp Leu Thr Lys Tyr Thr Lys Leu Thr Ser Cys Asp Ile Trp Gly Thr
            100                 105                 110


Lys Glu Val Asp Tyr Leu Gly Leu Asp Asp Phe Ser Ser Pro Tyr Gln
            115                 120                 125


Asp Glu Glu Val Ile Ser Lys Thr Pro Thr Leu Ala Gln Leu Asn Ser
        130                 135                 140


Glu Asp Ser Gln Ser Val Ser Asp Ser Leu Tyr Tyr Pro Asp Ser Leu
145                 150                 155                 160


Phe Ser Val Lys Gln Asn Pro Leu Pro Ser Ser Phe Pro Gly Lys Lys
                165                 170                 175


Ile Thr Ser Arg Ala Ala Ala Pro Val Cys Ser Ser Lys Thr Leu Gln
            180                 185                 190
```

```
Ala Glu Val Pro Leu Ser Asp Cys Val Gln Lys Ala Ser Lys Pro Pro
        195                 200                 205

Ser Ser Thr Gln Ile Met Val Lys Thr Asn Met Tyr His Asn Glu Lys
        210                 215                 220

Val Asn Phe His Val Glu Cys Lys Asp Tyr Val Lys Lys Ala Lys Val
225                 230                 235                 240

Lys Ile Asn Pro Val Gln Gln Ser Arg Pro Leu Leu Ser Gln Ile His
                245                 250                 255

Thr Asp Ala Ala Lys Glu Asn Thr Cys Tyr Cys Gly Ala Val Ala Lys
            260                 265                 270

Arg Gln Glu Lys Lys Gly Met Glu Pro Leu Gln Gly His Ala Thr Pro
        275                 280                 285

Ala Leu Pro Phe Lys Glu Thr Gln Glu Leu Leu Leu Ser Pro Leu Pro
    290                 295                 300

Gln Glu Gly Pro Gly Ser Leu Ala Ala Gly Glu Ser Ser Ser Leu Ser
305                 310                 315                 320

Ala Ser Thr Ser Val Ser Asp Ser Ser Gln Lys Lys Glu Glu His Asn
                325                 330                 335

Tyr Ser Leu Phe Val Ser Asp Asn Leu Gly Glu Gln Pro Thr Lys Cys
            340                 345                 350

Ser Pro Glu Glu Asp Glu Glu Asp Glu Glu Asp Val Asp Asp Glu Asp
        355                 360                 365

His Asp Glu Gly Phe Gly Ser Glu His Glu Leu Ser Glu Asn Glu Glu
    370                 375                 380

Glu Glu Glu Glu Glu Glu Asp Tyr Glu Asp Asp Lys Asp Asp Asp Ile
385                 390                 395                 400

Ser Asp Thr Phe Ser Glu Pro Gly Tyr Glu Asn Asp Ser Val Glu Asp
                405                 410                 415

Leu Lys Glu Val Thr Ser Ile Ser Ser Arg Lys Arg Gly Lys Arg Arg
            420                 425                 430

Tyr Phe Trp Glu Tyr Ser Glu Gln Leu Thr Pro Ser Gln Gln Glu Arg
        435                 440                 445
```

Met Leu Arg Pro Ser Glu Trp Asn Arg Asp Thr Leu Pro Ser Asn Met
    450   455   460

Tyr Gln Lys Asn Gly Leu His His Gly Lys Tyr Ala Val Lys Lys Ser
465   470   475   480

Arg Arg Thr Asp Val Glu Asp Leu Thr Pro Asn Pro Lys Lys Leu Leu
                485   490   495

Gln Ile Gly Asn Glu Leu Arg Lys Leu Asn Lys Val Ile Ser Asp Leu
                500   505   510

Thr Pro Val Ser Glu Leu Pro Leu Thr Ala Arg Pro Arg Ser Arg Lys
        515   520   525

Glu Lys Asn Lys Leu Ala Phe Arg Ala Cys Arg Leu Lys Lys Lys Ala
        530   535   540

Gln Tyr Glu Ala Asn Lys Val Lys Leu Trp Gly Leu Asn Thr Glu Tyr
545   550   555   560

Asp Asn Leu Leu Phe Val Ile Asn Ser Ile Lys Gln Glu Ile Val Asn
                565   570   575

Arg Val Gln Asn Pro Arg Asp Glu Arg Gly Pro Asn Met Gly Gln Lys
                580   585   590

Leu Glu Ile Leu Ile Lys Asp Thr Leu Gly Leu Pro Val Ala Gly Gln
        595   600   605

Thr Ser Glu Phe Val Asn Gln Val Leu Glu Lys Thr Ala Glu Gly Asn
        610   615   620

Pro Thr Gly Gly Leu Val Gly Leu Arg Ile Pro Thr Ser Lys Val
625   630   635

<210> 45
<211> 3938
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (481)..(2403)
<223>

<400> 45
ccgccccagt cgggtacccc tcctcgcgag agcgccgagc attccggcct gggaagcgcg   60

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tgcagaagcg gaggtgctgc tcatgggact tgtcggccgc cgtagcccct gctaggacag      120

cccgtgcgag cctgctggag gaggaagaga aaggcagaga gagtcgggtt acaagatggc      180

ggatctgtag tagttaccgc ggcggcggga gagcaagcga ccctgggggg gcaaagagac      240

ggggagtgg gtgtatgcgc gggtgaagtg agaggtaacg gggcctccgg gcggagaggc      300

ctcagtggct cttgtcaccc cttctcgcgg ctgaaccttt ggagccatgg tgaattcggg      360

cctctccgaa gccgccgccg ccgccaccgc cactactgcc tttaccgtct cctaagagtg      420

aggagcgcgg acgaggtaag cgaggaggcg gcggctagag cggtggagac agcagccacc      480
```

```
atg tcg gat acg cgg cgg cga gtg aag gtc tat acc ctg aac gaa gac      528
Met Ser Asp Thr Arg Arg Arg Val Lys Val Tyr Thr Leu Asn Glu Asp
1               5               10              15

cgg caa tgg gac gac cga ggc acc ggg cac gtc tcc tcc act tac gtg      576
Arg Gln Trp Asp Asp Arg Gly Thr Gly His Val Ser Ser Thr Tyr Val
            20              25              30

gag gag ctc aag ggg atg tcg ctg ctg gtt cgg gca gag tcc gac gga      624
Glu Glu Leu Lys Gly Met Ser Leu Leu Val Arg Ala Glu Ser Asp Gly
        35              40              45

tca cta ctc ttg gaa tca aag ata aat cca aat act gca tat cag aaa      672
Ser Leu Leu Leu Glu Ser Lys Ile Asn Pro Asn Thr Ala Tyr Gln Lys
    50              55              60

caa cag gat aca tta att gtt tgg tca gaa gca gag aac tat gat ttg      720
Gln Gln Asp Thr Leu Ile Val Trp Ser Glu Ala Glu Asn Tyr Asp Leu
65              70              75              80

gct ctg agt ttt cag gag aaa gct ggc tgt gat gag atc tgg gaa aaa      768
Ala Leu Ser Phe Gln Glu Lys Ala Gly Cys Asp Glu Ile Trp Glu Lys
            85              90              95

att tgt cag gaa gat gag aag ttt ttg tct gaa gtt ttt gca caa tta      816
Ile Cys Gln Glu Asp Glu Lys Phe Leu Ser Glu Val Phe Ala Gln Leu
            100             105             110

aca gat gag gct aca gat gat gat aaa cgg cgt gaa ttg gtt aat ttt      864
Thr Asp Glu Ala Thr Asp Asp Asp Lys Arg Arg Glu Leu Val Asn Phe
        115             120             125

ttc aag gag ttt tgt gca ttt tct cag aca tta caa cct caa aac agg      912
Phe Lys Glu Phe Cys Ala Phe Ser Gln Thr Leu Gln Pro Gln Asn Arg
    130             135             140

gat gca ttt ttc aaa aca ttg gca aaa ttg gga att ctt cct gct ctt      960
Asp Ala Phe Phe Lys Thr Leu Ala Lys Leu Gly Ile Leu Pro Ala Leu
145             150             155             160

gaa awt gta atg ggc atg gat gat ttg caa gtc aga tca gct gct aca      1008
Glu Xaa Val Met Gly Met Asp Asp Leu Gln Val Arg Ser Ala Ala Thr
            165             170             175

gat ata ttt tct tat cta gta gaa ttt agt cca tct atg gtc cga gag      1056
Asp Ile Phe Ser Tyr Leu Val Glu Phe Ser Pro Ser Met Val Arg Glu
            180             185             190

ttt gta atg caa gaa gct cag cag agt gat gac gat att ctt ctt att      1104
Phe Val Met Gln Glu Ala Gln Gln Ser Asp Asp Asp Ile Leu Leu Ile
```

```
              195                    200                       205

aat gtg gta att gaa caa atg atc tgt gat act gat cct gag cta gga    1152
Asn Val Val Ile Glu Gln Met Ile Cys Asp Thr Asp Pro Glu Leu Gly
    210               215               220

ggc gct gtt cag tta atg gga ctt ctt cgt act cta att gat cca gag    1200
Gly Ala Val Gln Leu Met Gly Leu Leu Arg Thr Leu Ile Asp Pro Glu
225               230               235               240

aac atg ctg gct aca act aat aaa acc gaa aaa agt gaa ttt cta aat    1248
Asn Met Leu Ala Thr Thr Asn Lys Thr Glu Lys Ser Glu Phe Leu Asn
                245               250               255

ttt ttc tac aac cat tgt atg cat gtt ctc aca gca cca ctt ttg acc    1296
Phe Phe Tyr Asn His Cys Met His Val Leu Thr Ala Pro Leu Leu Thr
            260               265               270

aat act tca gaa gac aaa tgt gaa aag gat ttt ttt tta aaa cat tac    1344
Asn Thr Ser Glu Asp Lys Cys Glu Lys Asp Phe Phe Leu Lys His Tyr
            275               280               285

aga tat agt tgg agt ttc ata tgt acc cct tca cat tcc cat tcc cat    1392
Arg Tyr Ser Trp Ser Phe Ile Cys Thr Pro Ser His Ser His Ser His
    290               295               300

tct acc ccc tct tcc tcc atc tct caa gat aat ata gtt gga tca aac    1440
Ser Thr Pro Ser Ser Ser Ile Ser Gln Asp Asn Ile Val Gly Ser Asn
305               310               315               320

aaa aac aac aca att tgt ccc gat aat tat caa aca gca cag cta ctt    1488
Lys Asn Asn Thr Ile Cys Pro Asp Asn Tyr Gln Thr Ala Gln Leu Leu
                325               330               335

gcc tta att tta gag tta ctc aca ttt tgt gtg gaa cat cac aca tat    1536
Ala Leu Ile Leu Glu Leu Leu Thr Phe Cys Val Glu His His Thr Tyr
            340               345               350

cac ata aaa aac tat att atg aac aag gac ttg cta aga aga gtc ttg    1584
His Ile Lys Asn Tyr Ile Met Asn Lys Asp Leu Leu Arg Arg Val Leu
            355               360               365

gtc ttg atg aat tca aag cac act ttt ctg gcc ttg tgt gcc ctt cgc    1632
Val Leu Met Asn Ser Lys His Thr Phe Leu Ala Leu Cys Ala Leu Arg
    370               375               380

ttt atg agg cgg ata att gga ctt aaa gat gaa ttt tat aat cgt tac    1680
Phe Met Arg Arg Ile Ile Gly Leu Lys Asp Glu Phe Tyr Asn Arg Tyr
385               390               395               400

atc acc aag gga aat ctt ttt gag cca gtt ata aat gca ctt ctg gat    1728
Ile Thr Lys Gly Asn Leu Phe Glu Pro Val Ile Asn Ala Leu Leu Asp
                405               410               415

aat gga act cgg tat aat ctg ttg aat tca gct gtt att gag ttg ttt    1776
Asn Gly Thr Arg Tyr Asn Leu Leu Asn Ser Ala Val Ile Glu Leu Phe
                420               425               430

gaa ttt ata aga gtg gaa gat atc aag tct ctt act gcc cat ata gtt    1824
Glu Phe Ile Arg Val Glu Asp Ile Lys Ser Leu Thr Ala His Ile Val
            435               440               445

gaa aac ttt tat aaa gca ctt gaa tcg att gaa tat gtt cag aca ttc    1872
Glu Asn Phe Tyr Lys Ala Leu Glu Ser Ile Glu Tyr Val Gln Thr Phe
```

aaa gga ttg aag act aaa tat gag caa gaa aaa gac aga caa aat cag   1920
Lys Gly Leu Lys Thr Lys Tyr Glu Gln Glu Lys Asp Arg Gln Asn Gln
465   470   475   480

aaa ctg aac agt gta cca tct ata ttg cgt agt aac aga ttt cgc aga   1968
Lys Leu Asn Ser Val Pro Ser Ile Leu Arg Ser Asn Arg Phe Arg Arg
                485   490   495

gat gca aaa gcc ttg gaa gag gat gaa gaa atg tgg ttt aat gaa gat   2016
Asp Ala Lys Ala Leu Glu Glu Asp Glu Glu Met Trp Phe Asn Glu Asp
            500   505   510

gaa gaa gag gaa gga aaa gca gtt gtg gca cca gtg gaa aaa cct aag   2064
Glu Glu Glu Glu Gly Lys Ala Val Val Ala Pro Val Glu Lys Pro Lys
        515   520   525

cca gaa gat gat ttt cca gat aat tat gaa aag ttt atg gag act aaa   2112
Pro Glu Asp Asp Phe Pro Asp Asn Tyr Glu Lys Phe Met Glu Thr Lys
    530   535   540

aaa gca aaa gaa agt gaa gac aag gaa aac ctt ccc aaa agg aca tct   2160
Lys Ala Lys Glu Ser Glu Asp Lys Glu Asn Leu Pro Lys Arg Thr Ser
545   550   555   560

cct ggt ggc ttc aaa ttt act ttc tcc cac tct gcc agt gct gct aat   2208
Pro Gly Gly Phe Lys Phe Thr Phe Ser His Ser Ala Ser Ala Ala Asn
                565   570   575

gga aca aac agt aaa tct gta gtg gct cag ata cca cca gca act tct   2256
Gly Thr Asn Ser Lys Ser Val Val Ala Gln Ile Pro Pro Ala Thr Ser
                580   585   590

aat gga tcc tct tcc aaa acc aca aac ttg cct acg tca gta aca gcc   2304
Asn Gly Ser Ser Ser Lys Thr Thr Asn Leu Pro Thr Ser Val Thr Ala
            595   600   605

acc aag gga agt ttg gtt ggc tta gtg gat tat cca gat gat gaa gag   2352
Thr Lys Gly Ser Leu Val Gly Leu Val Asp Tyr Pro Asp Asp Glu Glu
        610   615   620

gaa gat gaa gaa gaa gaa tcg tcc ccc agg aaa aga cct cgt ctt ggc   2400
Glu Asp Glu Glu Glu Glu Ser Ser Pro Arg Lys Arg Pro Arg Leu Gly
625   630   635   640

tca taaaatattt attaggggac cctcaacatg tggtcttaca atgctgcaac   2453
Ser

tgttcagtga gctgaaaatc tgaatcagaa agctttctca attgaactta taaaatatac   2513

aaggagtagc aaaagacagt atatcagcta agagagttta gttctaataa aaatcaggct   2573

tcccaggaac ttgattgctt gctagtaatt aaggggtttg ccttttaggc tgtcaaaaca   2633

aacattagta accagaacct gggagacagc ttctcagcaa ggaaaagtca caggtttggg   2693

gacggtttag gggaggggaa aaggttgata taataatgca gggttgctcc tcggggtgtc   2753

gatctagaaa caattttaca gaacttcagt tgtaaactca ataacattac ttgtataatg   2813

gtgctggcca tgttgttgtt ttaatcagtt gcctcttttt aaaagaaatt tttatggaaa   2873

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acacattcaa ctatcattaa aaaaatgaag ttaagctgtt gggaccattt ctttaagatt      2933

taacaaaagt tcagcctttt aggtagttga agggaagtac accccgtatt cagcacatgt      2993

tgagttttct acaccaggaa ttttcaatat gtatattgat gaaaacaagc tcaattcaaa      3053

ctggacagtt ttaagataat gttaaaatca gcactttag agacaacgaa ggccaagaat      3113

cagtacagta gtattccaaa atgattttct ctagaaattt gaaagtagat cgaacagaat      3173

gttgtcaacc gcctaccagt acaatctttt gtggaagata ctttgaaatc actttctact      3233

ttgttagtaa agttctgtct ttccagagct gcaagtttta aagtgttact tatacagacc      3293

aaccaagaat agtgctgaat taagtggcat ttagtatcta gaagccattt tgatccaaga      3353

agctacttaa gtgtcaaagt cagcatgcag cacatgtagc ttttctgtaa acaagggtgt      3413

gatatgaaag ctgctttttt aagaagagta aaagcacatt ccatatacgt aagtgaattt      3473

taaaaataaa ttgaggcaaa cagttaagtt ttatttttag agcaacaagt taactgtaaa      3533

tattttaatg ttagtttgct catctatgat ctgagatcat gccgaagtga gaaaaatctc      3593

cccaaaatac aatttaatgc attgggaaaa aaaaacttta acagtaattc cagccacaat      3653

ctttagatca cccttgtaat gtgttacggg tccatttttc ctggaatcgt ttaatctaaa      3713

gcagtttccc ctgttttgga gattttgtag ttaattttaa ttttggctat tgtttggaaa      3773

agatgagctg tctgtgtaga tatgaagtat agttttttcc ataaaacaga tgtttatttt      3833

gtattaaaaa ataccactgt acttgtttta caccatttgt atacatgtgg tgatattaat      3893

gctaaactgt aaaattcagg aattaaaatg tgaccctgta attcc                     3938
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<210> 46
<211> 641
<212> PRT
<213> Homo sapiens

<220>
<221> misc_feature
<222> (162)..(162)
<223> The 'Xaa' at location 162 stands for Asn, or Ile.

<400> 46

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Met Ser Asp Thr Arg Arg Arg Val Lys Val Tyr Thr Leu Asn Glu Asp
1               5                   10                  15


Arg Gln Trp Asp Asp Arg Gly Thr Gly His Val Ser Ser Thr Tyr Val
            20                  25                  30


Glu Glu Leu Lys Gly Met Ser Leu Leu Val Arg Ala Glu Ser Asp Gly
        35                  40                  45


Ser Leu Leu Leu Glu Ser Lys Ile Asn Pro Asn Thr Ala Tyr Gln Lys
    50                  55                  60
```

Gln Gln Asp Thr Leu Ile Val Trp Ser Glu Ala Glu Asn Tyr Asp Leu
65   70   75   80

Ala Leu Ser Phe Gln Glu Lys Ala Gly Cys Asp Glu Ile Trp Glu Lys
                85   90   95

Ile Cys Gln Glu Asp Glu Lys Phe Leu Ser Glu Val Phe Ala Gln Leu
          100   105   110

Thr Asp Glu Ala Thr Asp Asp Lys Arg Arg Glu Leu Val Asn Phe
          115   120   125

Phe Lys Glu Phe Cys Ala Phe Ser Gln Thr Leu Gln Pro Gln Asn Arg
    130   135   140

Asp Ala Phe Phe Lys Thr Leu Ala Lys Leu Gly Ile Leu Pro Ala Leu
145   150   155   160

Glu Xaa Val Met Gly Met Asp Asp Leu Gln Val Arg Ser Ala Ala Thr
              165   170   175

Asp Ile Phe Ser Tyr Leu Val Glu Phe Ser Pro Ser Met Val Arg Glu
          180   185   190

Phe Val Met Gln Glu Ala Gln Gln Ser Asp Asp Asp Ile Leu Leu Ile
    195   200   205

Asn Val Val Ile Glu Gln Met Ile Cys Asp Thr Asp Pro Glu Leu Gly
    210   215   220

Gly Ala Val Gln Leu Met Gly Leu Leu Arg Thr Leu Ile Asp Pro Glu
225   230   235   240

Asn Met Leu Ala Thr Thr Asn Lys Thr Glu Lys Ser Glu Phe Leu Asn
              245   250   255

Phe Phe Tyr Asn His Cys Met His Val Leu Thr Ala Pro Leu Leu Thr
          260   265   270

Asn Thr Ser Glu Asp Lys Cys Glu Lys Asp Phe Phe Leu Lys His Tyr
          275   280   285

Arg Tyr Ser Trp Ser Phe Ile Cys Thr Pro Ser His Ser His Ser His
    290   295   300

Ser Thr Pro Ser Ser Ser Ile Ser Gln Asp Asn Ile Val Gly Ser Asn
305   310   315   320

```
Lys Asn Asn Thr Ile Cys Pro Asp Asn Tyr Gln Thr Ala Gln Leu Leu
            325             330             335

Ala Leu Ile Leu Glu Leu Leu Thr Phe Cys Val Glu His His Thr Tyr
            340             345             350

His Ile Lys Asn Tyr Ile Met Asn Lys Asp Leu Leu Arg Arg Val Leu
            355             360             365

Val Leu Met Asn Ser Lys His Thr Phe Leu Ala Leu Cys Ala Leu Arg
        370             375             380

Phe Met Arg Arg Ile Ile Gly Leu Lys Asp Glu Phe Tyr Asn Arg Tyr
385             390             395             400

Ile Thr Lys Gly Asn Leu Phe Glu Pro Val Ile Asn Ala Leu Leu Asp
            405             410             415

Asn Gly Thr Arg Tyr Asn Leu Leu Asn Ser Ala Val Ile Glu Leu Phe
            420             425             430

Glu Phe Ile Arg Val Glu Asp Ile Lys Ser Leu Thr Ala His Ile Val
            435             440             445

Glu Asn Phe Tyr Lys Ala Leu Glu Ser Ile Glu Tyr Val Gln Thr Phe
        450             455             460

Lys Gly Leu Lys Thr Lys Tyr Glu Gln Glu Lys Asp Arg Gln Asn Gln
465             470             475             480

Lys Leu Asn Ser Val Pro Ser Ile Leu Arg Ser Asn Arg Phe Arg Arg
            485             490             495

Asp Ala Lys Ala Leu Glu Glu Asp Glu Glu Met Trp Phe Asn Glu Asp
            500             505             510

Glu Glu Glu Glu Gly Lys Ala Val Val Ala Pro Val Glu Lys Pro Lys
        515             520             525

Pro Glu Asp Asp Phe Pro Asp Asn Tyr Glu Lys Phe Met Glu Thr Lys
    530             535             540

Lys Ala Lys Glu Ser Glu Asp Lys Glu Asn Leu Pro Lys Arg Thr Ser
545             550             555             560

Pro Gly Gly Phe Lys Phe Thr Phe Ser His Ser Ala Ser Ala Ala Asn
            565             570             575
```

```
Gly Thr Asn Ser Lys Ser Val Val Ala Gln Ile Pro Pro Ala Thr Ser
        580                 585                 590

Asn Gly Ser Ser Ser Lys Thr Thr Asn Leu Pro Thr Ser Val Thr Ala
        595                 600                 605

Thr Lys Gly Ser Leu Val Gly Leu Val Asp Tyr Pro Asp Asp Glu Glu
        610                 615                 620

Glu Asp Glu Glu Glu Glu Ser Ser Pro Arg Lys Arg Pro Arg Leu Gly
625                 630                 635                 640

Ser


<210>  47
<211>  4378
<212>  DNA
<213>  Homo sapiens

<220>
<221>  CDS
<222>  (393)..(2843)
<223>


<400>  47
cttgtcggcc gccgtagccc ctgctaggac agcccgtgcg agcctgctgg aggaggaaga    60

gaaaggcaga gagagtcggg ttacaagatg gcggatctgt agtagttacc gcggcggcgg   120

gagagcaagc gagccctggg gggcaaagag acgggagagt gggtgtatgc gcgggtgaag   180

tgagaggtaa cggggcctcc gggcggagag gcctcagtgg ctcttgtcac cccttctcgc   240

ggctgaacct ttggagccat ggtgaattcg ggcctctccg aagccgccgc cgccgccacc   300

gccactactg cctttaccgt ctcctaagag tgaggagcgc ggacgaggta agcgaggagg   360

cggcggctag agcggtggag acagcagcca cc atg tcg gat acg cgg cgg cga   413
                                     Met Ser Asp Thr Arg Arg Arg
                                     1               5

gtg aag gtc tat acc ctg aac gaa gac cgg caa tgg gac gac cga ggc   461
Val Lys Val Tyr Thr Leu Asn Glu Asp Arg Gln Trp Asp Asp Arg Gly
        10                  15                  20

acc ggg cac gtc tcc tcc act tac gtg gag gag ctc aag ggg atg tcg   509
Thr Gly His Val Ser Ser Thr Tyr Val Glu Glu Leu Lys Gly Met Ser
        25                  30                  35

ctg ctg gtt cgg gca gag tcc gac gga tca cta ctc ttg gaa tca aag   557
Leu Leu Val Arg Ala Glu Ser Asp Gly Ser Leu Leu Leu Glu Ser Lys
40                  45                  50                  55

ata aat cca aat act gca tat cag aaa caa cag gat aca tta att gtt   605
Ile Asn Pro Asn Thr Ala Tyr Gln Lys Gln Gln Asp Thr Leu Ile Val
                60                  65                  70
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tgg tca gaa gca gag aac tat gat ttg gct ctg agt ttt cag gag aaa        653
Trp Ser Glu Ala Glu Asn Tyr Asp Leu Ala Leu Ser Phe Gln Glu Lys
                75                  80                  85

gct ggc tgt gat gag atc tgg gaa aaa att tgt cag gtt caa ggt aaa        701
Ala Gly Cys Asp Glu Ile Trp Glu Lys Ile Cys Gln Val Gln Gly Lys
                90                  95                  100

gac cca tca gtg gaa gtc aca cag gac ctc att gat gaa tct gaa gaa        749
Asp Pro Ser Val Glu Val Thr Gln Asp Leu Ile Asp Glu Ser Glu Glu
    105                 110                 115

gaa cga ttt gaa gaa atg cct gaa act agt cat ctg att gac ctg ccc        797
Glu Arg Phe Glu Glu Met Pro Glu Thr Ser His Leu Ile Asp Leu Pro
120                 125                 130                 135

aca tgt gaa ctc aat aaa ctt gaa gag att gct gac tta gtt acc tca        845
Thr Cys Glu Leu Asn Lys Leu Glu Glu Ile Ala Asp Leu Val Thr Ser
                140                 145                 150

gtg ctc tcc tca cct atc cgt agg gaa aag ctg gct ctc gcc ttg gaa        893
Val Leu Ser Ser Pro Ile Arg Arg Glu Lys Leu Ala Leu Ala Leu Glu
                155                 160                 165

aat gaa ggc tat att aaa aaa cta ttg cag ctg ttc caa gct tgc gag        941
Asn Glu Gly Tyr Ile Lys Lys Leu Leu Gln Leu Phe Gln Ala Cys Glu
                170                 175                 180

aac cta gaa aac act gaa ggc tta cac cat ttg tat gaa att att aga        989
Asn Leu Glu Asn Thr Glu Gly Leu His His Leu Tyr Glu Ile Ile Arg
    185                 190                 195

gga atc tta ttc cta aat aag gca act ctt ttt gag gta atg ttt tct       1037
Gly Ile Leu Phe Leu Asn Lys Ala Thr Leu Phe Glu Val Met Phe Ser
200                 205                 210                 215

gat gag tgt atc atg gat gtc gtg gga tgc ctt gaa tat gac cct gct       1085
Asp Glu Cys Ile Met Asp Val Val Gly Cys Leu Glu Tyr Asp Pro Ala
                220                 225                 230

ttg gct cag cca aaa aga cat aga gaa ttc ttg acc aaa act gca aag       1133
Leu Ala Gln Pro Lys Arg His Arg Glu Phe Leu Thr Lys Thr Ala Lys
                235                 240                 245

ttc aag gaa gtt ata cca ata aca gac tct gaa cta agg caa aaa ata       1181
Phe Lys Glu Val Ile Pro Ile Thr Asp Ser Glu Leu Arg Gln Lys Ile
    250                 255                 260

cat cag act tac agg gta cag tac att cag gac atc att ttg ccc aca       1229
His Gln Thr Tyr Arg Val Gln Tyr Ile Gln Asp Ile Ile Leu Pro Thr
265                 270                 275

cca tct gtt ttt gaa gag aat ttt ctt tct act ctt acg tct ttt att       1277
Pro Ser Val Phe Glu Glu Asn Phe Leu Ser Thr Leu Thr Ser Phe Ile
280                 285                 290                 295

ttc ttc aac aaa gtt gag ata gtc agc atg ttg cag gaa gat gag aag       1325
Phe Phe Asn Lys Val Glu Ile Val Ser Met Leu Gln Glu Asp Glu Lys
                300                 305                 310

ttt ttg tct gaa gtt ttt gca caa tta aca gat gag gct aca gat gat       1373
Phe Leu Ser Glu Val Phe Ala Gln Leu Thr Asp Glu Ala Thr Asp Asp
                315                 320                 325
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gat aaa cgg cgt gaa ttg gtt aat ttt ttc aag gag ttt tgt gca ttt          1421
Asp Lys Arg Arg Glu Leu Val Asn Phe Phe Lys Glu Phe Cys Ala Phe
        330                     335                 340

tct cag aca tta caa cct caa aac agg gat gca ttt ttc aaa aca ttg          1469
Ser Gln Thr Leu Gln Pro Gln Asn Arg Asp Ala Phe Phe Lys Thr Leu
    345                     350                 355

gca aaa ttg gga att ctt cct gct ctt gaa att gta atg ggc atg gat          1517
Ala Lys Leu Gly Ile Leu Pro Ala Leu Glu Ile Val Met Gly Met Asp
360                 365                 370                 375

gat ttg caa gtc aga tca gct gct aca gat ata ttt tct tat cta gta          1565
Asp Leu Gln Val Arg Ser Ala Ala Thr Asp Ile Phe Ser Tyr Leu Val
            380                 385                 390

gaa ttt agt cca tct atg gtc cga gag ttt gta atg caa gaa gct cag          1613
Glu Phe Ser Pro Ser Met Val Arg Glu Phe Val Met Gln Glu Ala Gln
            395                 400                 405

cag agt gat gac gat att ctt ctt att aat gtg gta att gaa caa atg          1661
Gln Ser Asp Asp Asp Ile Leu Leu Ile Asn Val Val Ile Glu Gln Met
        410                 415                 420

atc tgt gat act gat cct gag cta gga ggc gct gtt cag tta atg gga          1709
Ile Cys Asp Thr Asp Pro Glu Leu Gly Gly Ala Val Gln Leu Met Gly
        425                 430                 435

ctt ctt cgt act cta att gat cca gag aac atg ctg gct aca act aat          1757
Leu Leu Arg Thr Leu Ile Asp Pro Glu Asn Met Leu Ala Thr Thr Asn
440                 445                 450                 455

aaa acc gaa aaa agt gaa ttt cta aat ttt ttc tac aac cat tgt atg          1805
Lys Thr Glu Lys Ser Glu Phe Leu Asn Phe Phe Tyr Asn His Cys Met
                460                 465                 470

cat gtt ctc aca gca cca ctt ttg acc aat act tca gaa gac aaa tgt          1853
His Val Leu Thr Ala Pro Leu Leu Thr Asn Thr Ser Glu Asp Lys Cys
            475                 480                 485

gaa aag gat aat ata gtt gga tca aac aaa aac aac aca att tgt ccc          1901
Glu Lys Asp Asn Ile Val Gly Ser Asn Lys Asn Asn Thr Ile Cys Pro
        490                 495                 500

gat aat tat caa aca gca cag cta ctt gcc tta att tta gag tta ctc          1949
Asp Asn Tyr Gln Thr Ala Gln Leu Leu Ala Leu Ile Leu Glu Leu Leu
        505                 510                 515

aca ttt tgt gtg gaa cat cac aca tat cac ata aaa aac tat att atg          1997
Thr Phe Cys Val Glu His His Thr Tyr His Ile Lys Asn Tyr Ile Met
520                 525                 530                 535

aac aag gac ttg cta aga aga gtc ttg gtc ttg atg aat tca aag cac          2045
Asn Lys Asp Leu Leu Arg Arg Val Leu Val Leu Met Asn Ser Lys His
            540                 545                 550

act ttt ctg gcc ttg tgt gcc ctt cgc ttt atg agg cgg ata att gga          2093
Thr Phe Leu Ala Leu Cys Ala Leu Arg Phe Met Arg Arg Ile Ile Gly
            555                 560                 565

ctt aaa gat gaa ttt tat aat cgt tac atc acc aag gga aat ctt ttt          2141
Leu Lys Asp Glu Phe Tyr Asn Arg Tyr Ile Thr Lys Gly Asn Leu Phe
        570                 575                 580
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gag cca gtt ata aat gca ctt ctg gat aat gga act cgg tat aat ctg        2189
Glu Pro Val Ile Asn Ala Leu Leu Asp Asn Gly Thr Arg Tyr Asn Leu
    585                 590                 595

tta aat tca gct gtt att gag ttg ttt gaa ttt ata aga gtg gaa gat        2237
Leu Asn Ser Ala Val Ile Glu Leu Phe Glu Phe Ile Arg Val Glu Asp
600                 605                 610                 615

atc aag tct ctt act gcc cat ata gtt gaa aac ttt tat aaa gca ctt        2285
Ile Lys Ser Leu Thr Ala His Ile Val Glu Asn Phe Tyr Lys Ala Leu
                620                 625                 630

gaa tcg att gaa tat gtt cag aca ttc aaa gga ttg aag act aaa tat        2333
Glu Ser Ile Glu Tyr Val Gln Thr Phe Lys Gly Leu Lys Thr Lys Tyr
                635                 640                 645

gag caa gaa aaa gac aga caa aat cag aaa ctg aac agt gta cca tct        2381
Glu Gln Glu Lys Asp Arg Gln Asn Gln Lys Leu Asn Ser Val Pro Ser
        650                 655                 660

ata ttg cgt agt aac aga ttt cgc aga gat gca aaa gcc ttg gaa gag        2429
Ile Leu Arg Ser Asn Arg Phe Arg Arg Asp Ala Lys Ala Leu Glu Glu
        665                 670                 675

gat gaa gaa atg tgg ttt aat gaa gat gaa gaa gag gaa gga aaa gca        2477
Asp Glu Glu Met Trp Phe Asn Glu Asp Glu Glu Glu Glu Gly Lys Ala
680                 685                 690                 695

gtt gtg gca cca gtg gaa aaa cct aag cca gaa gat gat ttt cca gat        2525
Val Val Ala Pro Val Glu Lys Pro Lys Pro Glu Asp Asp Phe Pro Asp
                700                 705                 710

aat tat gaa aag ttt atg gag act aaa aaa gca aaa gaa agt gaa gac        2573
Asn Tyr Glu Lys Phe Met Glu Thr Lys Lys Ala Lys Glu Ser Glu Asp
                715                 720                 725

aag gaa aac ctt ccc aaa agg aca tct cct ggt ggc ttc aaa ttt act        2621
Lys Glu Asn Leu Pro Lys Arg Thr Ser Pro Gly Gly Phe Lys Phe Thr
            730                 735                 740

ttc tcc cac tct gcc agt gct gct aat gga aca aac agt aaa tct gta        2669
Phe Ser His Ser Ala Ser Ala Ala Asn Gly Thr Asn Ser Lys Ser Val
    745                 750                 755

gtg gct cag ata cca cca gca act tct aat gga tcc tct tcc aaa acc        2717
Val Ala Gln Ile Pro Pro Ala Thr Ser Asn Gly Ser Ser Ser Lys Thr
760                 765                 770                 775

aca aac ttg cct acg tca gta aca gcc acc aag gga agt ttg gtt ggc        2765
Thr Asn Leu Pro Thr Ser Val Thr Ala Thr Lys Gly Ser Leu Val Gly
                780                 785                 790

tta gtg gat tat cca gat gat gaa gag gaa gat gaa gaa gaa gaa tcg        2813
Leu Val Asp Tyr Pro Asp Asp Glu Glu Glu Asp Glu Glu Glu Glu Ser
                795                 800                 805

tcc ccc agg aaa aga cct cgt ctt ggc tca taaaatattt attaggggac        2863
Ser Pro Arg Lys Arg Pro Arg Leu Gly Ser
        810                 815

cctcaacatg tggtcttaca atgctgcaac tgttcagtga gctgaaaatc tgaatcagaa        2923

agctttctca attgaactta taaatatac aaggagtagc aaaagacagt atatcagcta        2983
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agagagttta gttctaataa aaatcaggct tcccaggaac ttgattgctt gctagtaatt    3043

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ttctcagcaa ggaaaagtca caggtttggg gacggtttag gggaggggaa aaggttgata    3163

taataatgca gggttgctcc tcggggtgtc gatctagaaa caattttaca gaacttcagt    3223

tgtaaactca ataacattac ttgtataatg gtgctggcca tgttgttgtt ttaatcagtt    3283

gcctcttttt aaaagaaatt tttatggaaa acacattcaa ctatcattaa aaaaatgaag    3343

ttaagctgtt gggaccattt ctttaagatt taacaaaagt tcagcctttt aggtagttga    3403

agggaagtac accccgtatt cagcacatgt tgagttttct acaccaggaa ttttcaatat    3463

gtatattgat gaaaacaagc tcaattcaaa ctggacagtt ttaagataat gttaaaatca    3523

gcacttttag agacaacgaa ggccaagaat cagtacagta gtattccaaa atgattttct    3583

ctagaaattt gaaagtagat cgaacagaat gttgtcaacc gcctaccagt acaatctttt    3643

gtggaagata ctttgaaatc actttctact ttgttagtaa agttctgtct ttccagagct    3703

gcaagtttta aagtgttact tatacagacc aaccaagaat agtgctgaat taagtggcat    3763

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cacatgtagc ttttctgtaa acaagggtgt gatatgaaag ctgctttttt aagaagagta    3883

aaagcacatt ccatatacgt aagtgaattt taaaaataaa ttgaggcaaa cagttaagtt    3943

ttatttttag agcaacaagt taactgtaaa tattttaatg ttagtttgct catctatgat    4003

ctgagatcat gccgaagtga gaaaaatctc cccaaaatac aatttaatgc attgggaaaa    4063

aaaaacttta acagtaattc cagccacaat ctttagatca cccttgtaat gtgttacggg    4123

tccatttttc ctggaatcgt ttaatctaaa gcagtttccc ctgttttgga gattttgtag    4183

ttaattttaa ttttggctat tgtttggaaa agatgagctg tctgtgtaga tatgaagtat    4243

agtttttttcc ataaaacaga tgtttatttt gtattaaaaa ataccactgt acttgtttta    4303

caccatttgt atacatgtgg tgatattaat gctaaactgt aaaattcagg aattaaaatg    4363

tgaccctgta attcc                                                     4378
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<213> Homo sapiens

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Arg Gln Trp Asp Asp Arg Gly Thr Gly His Val Ser Ser Thr Tyr Val
            20                  25                  30
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Glu Glu Leu Lys Gly Met Ser Leu Leu Val Arg Ala Glu Ser Asp Gly
        35   40   45

Ser Leu Leu Leu Glu Ser Lys Ile Asn Pro Asn Thr Ala Tyr Gln Lys
        50   55   60

Gln Gln Asp Thr Leu Ile Val Trp Ser Glu Ala Glu Asn Tyr Asp Leu
65   70   75   80

Ala Leu Ser Phe Gln Glu Lys Ala Gly Cys Asp Glu Ile Trp Glu Lys
                85   90   95

Ile Cys Gln Val Gln Gly Lys Asp Pro Ser Val Glu Val Thr Gln Asp
                100   105   110

Leu Ile Asp Glu Ser Glu Glu Glu Arg Phe Glu Glu Met Pro Glu Thr
        115   120   125

Ser His Leu Ile Asp Leu Pro Thr Cys Glu Leu Asn Lys Leu Glu Glu
        130   135   140

Ile Ala Asp Leu Val Thr Ser Val Leu Ser Ser Pro Ile Arg Arg Glu
145   150   155   160

Lys Leu Ala Leu Ala Leu Glu Asn Glu Gly Tyr Ile Lys Lys Leu Leu
                165   170   175

Gln Leu Phe Gln Ala Cys Glu Asn Leu Glu Asn Thr Glu Gly Leu His
                180   185   190

His Leu Tyr Glu Ile Ile Arg Gly Ile Leu Phe Leu Asn Lys Ala Thr
                195   200   205

Leu Phe Glu Val Met Phe Ser Asp Glu Cys Ile Met Asp Val Val Gly
        210   215   220

Cys Leu Glu Tyr Asp Pro Ala Leu Ala Gln Pro Lys Arg His Arg Glu
225   230   235   240

Phe Leu Thr Lys Thr Ala Lys Phe Lys Glu Val Ile Pro Ile Thr Asp
                245   250   255

Ser Glu Leu Arg Gln Lys Ile His Gln Thr Tyr Arg Val Gln Tyr Ile
                260   265   270

Gln Asp Ile Ile Leu Pro Thr Pro Ser Val Phe Glu Glu Asn Phe Leu
        275   280   285

Ser Thr Leu Thr Ser Phe Ile Phe Phe Asn Lys Val Glu Ile Val Ser
    290   295   300

Met Leu Gln Glu Asp Glu Lys Phe Leu Ser Glu Val Phe Ala Gln Leu
305   310   315   320

Thr Asp Glu Ala Thr Asp Asp Asp Lys Arg Arg Glu Leu Val Asn Phe
                325   330   335

Phe Lys Glu Phe Cys Ala Phe Ser Gln Thr Leu Gln Pro Gln Asn Arg
                340   345   350

Asp Ala Phe Phe Lys Thr Leu Ala Lys Leu Gly Ile Leu Pro Ala Leu
                355   360   365

Glu Ile Val Met Gly Met Asp Asp Leu Gln Val Arg Ser Ala Ala Thr
    370   375   380

Asp Ile Phe Ser Tyr Leu Val Glu Phe Ser Pro Ser Met Val Arg Glu
385   390   395   400

Phe Val Met Gln Glu Ala Gln Gln Ser Asp Asp Asp Ile Leu Leu Ile
                405   410   415

Asn Val Val Ile Glu Gln Met Ile Cys Asp Thr Asp Pro Glu Leu Gly
                420   425   430

Gly Ala Val Gln Leu Met Gly Leu Leu Arg Thr Leu Ile Asp Pro Glu
                435   440   445

Asn Met Leu Ala Thr Thr Asn Lys Thr Glu Lys Ser Glu Phe Leu Asn
    450   455   460

Phe Phe Tyr Asn His Cys Met His Val Leu Thr Ala Pro Leu Leu Thr
465   470   475   480

Asn Thr Ser Glu Asp Lys Cys Glu Lys Asp Asn Ile Val Gly Ser Asn
                485   490   495

Lys Asn Asn Thr Ile Cys Pro Asp Asn Tyr Gln Thr Ala Gln Leu Leu
                500   505   510

Ala Leu Ile Leu Glu Leu Leu Thr Phe Cys Val Glu His His Thr Tyr
                515   520   525

His Ile Lys Asn Tyr Ile Met Asn Lys Asp Leu Leu Arg Arg Val Leu
    530   535   540

Val Leu Met Asn Ser Lys His Thr Phe Leu Ala Leu Cys Ala Leu Arg
545   550   555   560

Phe Met Arg Arg Ile Ile Gly Leu Lys Asp Glu Phe Tyr Asn Arg Tyr
                 565   570   575

Ile Thr Lys Gly Asn Leu Phe Glu Pro Val Ile Asn Ala Leu Leu Asp
             580   585   590

Asn Gly Thr Arg Tyr Asn Leu Leu Asn Ser Ala Val Ile Glu Leu Phe
         595   600   605

Glu Phe Ile Arg Val Glu Asp Ile Lys Ser Leu Thr Ala His Ile Val
    610   615   620

Glu Asn Phe Tyr Lys Ala Leu Glu Ser Ile Glu Tyr Val Gln Thr Phe
625   630   635   640

Lys Gly Leu Lys Thr Lys Tyr Glu Gln Glu Lys Asp Arg Gln Asn Gln
             645   650   655

Lys Leu Asn Ser Val Pro Ser Ile Leu Arg Ser Asn Arg Phe Arg Arg
             660   665   670

Asp Ala Lys Ala Leu Glu Glu Asp Glu Glu Met Trp Phe Asn Glu Asp
         675   680   685

Glu Glu Glu Glu Gly Lys Ala Val Val Ala Pro Val Glu Lys Pro Lys
    690   695   700

Pro Glu Asp Asp Phe Pro Asp Asn Tyr Glu Lys Phe Met Glu Thr Lys
705   710   715   720

Lys Ala Lys Glu Ser Glu Asp Lys Glu Asn Leu Pro Lys Arg Thr Ser
             725   730   735

Pro Gly Gly Phe Lys Phe Thr Phe Ser His Ser Ala Ser Ala Ala Asn
             740   745   750

Gly Thr Asn Ser Lys Ser Val Val Ala Gln Ile Pro Pro Ala Thr Ser
         755   760   765

Asn Gly Ser Ser Ser Lys Thr Thr Asn Leu Pro Thr Ser Val Thr Ala
    770   775   780

Thr Lys Gly Ser Leu Val Gly Leu Val Asp Tyr Pro Asp Asp Glu Glu
785   790   795   800

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Glu Asp Glu Glu Glu Glu Ser Ser Pro Arg Lys Arg Pro Arg Leu Gly
            805                 810                 815


Ser



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<213>   Homo sapiens

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                                  Met Gln Arg Glu Glu Lys Gln Leu
                                  1               5

gag gca tca tta gat gca ctg ctg agt caa gtg gct gat ctg aag aac      101
Glu Ala Ser Leu Asp Ala Leu Leu Ser Gln Val Ala Asp Leu Lys Asn
    10              15                  20

tct ctg ggg agt ttc att tgc aag ttg gag aac gag tat ggc cgg ctg      149
Ser Leu Gly Ser Phe Ile Cys Lys Leu Glu Asn Glu Tyr Gly Arg Leu
25                  30                  35                  40

acc tgg cca tct gtc ctg gac agc ttt gcc ttg ctt tct gga cag ctg      197
Thr Trp Pro Ser Val Leu Asp Ser Phe Ala Leu Leu Ser Gly Gln Leu
                45                  50                  55

aac act ctg aac aag gtc ttg aag cat gaa aaa aca ccg ctg ttc cgt      245
Asn Thr Leu Asn Lys Val Leu Lys His Glu Lys Thr Pro Leu Phe Arg
                60                  65                  70

aac cag gtc atc att cct ctg gtg ttg tct cca gac cga gat gaa gat      293
Asn Gln Val Ile Ile Pro Leu Val Leu Ser Pro Asp Arg Asp Glu Asp
            75                  80                  85

ctc atg cgg cag act gaa gga cgg gtg cct gtt ttc agc cat gag gta      341
Leu Met Arg Gln Thr Glu Gly Arg Val Pro Val Phe Ser His Glu Val
        90                  95                  100

gtc cct gac cat ctg aga acc aag cct gac cct gaa gtg gaa gaa cag      389
Val Pro Asp His Leu Arg Thr Lys Pro Asp Pro Glu Val Glu Glu Gln
105                 110                 115                 120

gag aag caa ctg acg aca gat gct gcc cgc att ggt gca gat gca gcc      437
Glu Lys Gln Leu Thr Thr Asp Ala Ala Arg Ile Gly Ala Asp Ala Ala
                125                 130                 135

cag aag cag atc cag agc ttg aat aaa atg tgt tca aac ctt ctg gag      485
Gln Lys Gln Ile Gln Ser Leu Asn Lys Met Cys Ser Asn Leu Leu Glu
                140                 145                 150

aaa atc agc aaa gag gag cga gaa tca gag agt gga ggt ctc cgg ccg      533
Lys Ile Ser Lys Glu Glu Arg Glu Ser Glu Ser Gly Gly Leu Arg Pro
        155                 160                 165
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aac aag cag acc ttt aac cct aca gac act aat gcc ttg gtg gca gct        581
Asn Lys Gln Thr Phe Asn Pro Thr Asp Thr Asn Ala Leu Val Ala Ala
    170             175             180

gtt gcc ttt ggg aaa gga cta tct aat tgg aga cct tca ggc agc agt        629
Val Ala Phe Gly Lys Gly Leu Ser Asn Trp Arg Pro Ser Gly Ser Ser
185             190             195             200

ggt cct ggc cag gca ggc cag cca gga gct ggg acg atc ctt gca gga        677
Gly Pro Gly Gln Ala Gly Gln Pro Gly Ala Gly Thr Ile Leu Ala Gly
            205             210             215

acc tca gga tta cag cag gtg cag atg gca gga gct cca agc cag cag        725
Thr Ser Gly Leu Gln Gln Val Gln Met Ala Gly Ala Pro Ser Gln Gln
            220             225             230

cag cca atg ctc agt ggg gta caa atg gct cag gca ggt caa cca ggg        773
Gln Pro Met Leu Ser Gly Val Gln Met Ala Gln Ala Gly Gln Pro Gly
        235             240             245

aaa atg cca agt gga ata aaa acc aac atc aag tcg gct tcc atg cat        821
Lys Met Pro Ser Gly Ile Lys Thr Asn Ile Lys Ser Ala Ser Met His
    250             255             260

ccc tac cag cgg tgagtgtggc tggcaacctc gactccctgg tgctctttgc          873
Pro Tyr Gln Arg
265

agagttgggc agtgaaatta cctttgctc aaggctcacc tagatgggta caataaaaag     933

aacatgggct ttcagcagca gacaaatccc acttccacca ctgactagct gtgtgacctt     993

ggacaagtga cctaattttt ctgagcctgt ttctcatttg taaatggtga taatacctac    1053

ctcataggt tgttgtgagg attaaaatga ggaaatgaat gtaaagcact tagtacagta     1113

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a                                                                      1174


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Met Gln Arg Glu Glu Lys Gln Leu Glu Ala Ser Leu Asp Ala Leu Leu
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Ser Gln Val Ala Asp Leu Lys Asn Ser Leu Gly Ser Phe Ile Cys Lys
            20              25              30


Leu Glu Asn Glu Tyr Gly Arg Leu Thr Trp Pro Ser Val Leu Asp Ser
        35              40              45


Phe Ala Leu Leu Ser Gly Gln Leu Asn Thr Leu Asn Lys Val Leu Lys
    50              55              60
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His Glu Lys Thr Pro Leu Phe Arg Asn Gln Val Ile Ile Pro Leu Val
65   70   75   80

Leu Ser Pro Asp Arg Asp Glu Asp Leu Met Arg Gln Thr Glu Gly Arg
              85   90   95

Val Pro Val Phe Ser His Glu Val Val Pro Asp His Leu Arg Thr Lys
              100   105   110

Pro Asp Pro Glu Val Glu Glu Gln Glu Lys Gln Leu Thr Thr Asp Ala
              115   120   125

Ala Arg Ile Gly Ala Asp Ala Ala Gln Lys Gln Ile Gln Ser Leu Asn
      130   135   140

Lys Met Cys Ser Asn Leu Leu Glu Lys Ile Ser Lys Glu Glu Arg Glu
145   150   155   160

Ser Glu Ser Gly Gly Leu Arg Pro Asn Lys Gln Thr Phe Asn Pro Thr
              165   170   175

Asp Thr Asn Ala Leu Val Ala Ala Val Ala Phe Gly Lys Gly Leu Ser
              180   185   190

Asn Trp Arg Pro Ser Gly Ser Ser Gly Pro Gly Gln Ala Gly Gln Pro
      195   200   205

Gly Ala Gly Thr Ile Leu Ala Gly Thr Ser Gly Leu Gln Gln Val Gln
      210   215   220

Met Ala Gly Ala Pro Ser Gln Gln Gln Pro Met Leu Ser Gly Val Gln
225   230   235   240

Met Ala Gln Ala Gly Gln Pro Gly Lys Met Pro Ser Gly Ile Lys Thr
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Asn Ile Lys Ser Ala Ser Met His Pro Tyr Gln Arg
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gccgccagcc ccttcctcct ttcccgcagg tgcgcactgc tgtgcttgcg gccgggtggg   180

cgccccgccg ctgcggtcgc ggtcgccgct ggtcctcccg ccgagccccg gcgcggggca   240

tgaggagccc ccgggtgccg cccagagacc agcaggctgc gcgcacacct agccagcggc   300

agacggggac atgagcagcg cgcacggggt cccgcgcccg gcggccagcc ctatccggcg   360

gcggccagcg ggtcaacgct gcccgggaga atgaggcagg agccggcggc agcctccttt   420

ttttccttct cctcgccttc ctgcggctcc ggcgctccgg gtccgggccg ggctgcggct   480

ctgctgcgtg ccccgcgcgc ccctcaaccg cctccgg atg cgc ttc tcg gtt agc   535
                                        Met Arg Phe Ser Val Ser
                                        1               5
```

```
ctg gca agg aag ata aag aca ttt gca acc aag atg gta atc act agt    583
Leu Ala Arg Lys Ile Lys Thr Phe Ala Thr Lys Met Val Ile Thr Ser
            10              15              20
```

```
gaa aat gat gaa gac aga gga ggt caa gaa aaa gaa agt aaa gag gag    631
Glu Asn Asp Glu Asp Arg Gly Gly Gln Glu Lys Glu Ser Lys Glu Glu
        25              30              35
```

```
agt gtc ttg gca atg ctg ggg att atc ggg acc att ctg aac ctg att    679
Ser Val Leu Ala Met Leu Gly Ile Ile Gly Thr Ile Leu Asn Leu Ile
    40              45              50
```

```
gtg atc ata ttt gtc tac ata tac acc acc ctg tgaatggccc agagcgtcct   732
Val Ile Ile Phe Val Tyr Ile Tyr Thr Thr Leu
55              60              65
```

```
cagaggcctc agaatggcca aagacggaag tcctgcgtgt cggcgcatca ctgaccagac   792

cctgcgagaa caagcaggct tgacccgcac ataccaccca atcaaatgca ccttcaaact   852

ttacaaaagg tcacacaaat agaccgatcc tgctgcaggg agcagacact aaagcacaat   912

gattccaaca aaactcattc acagcactag gaactcaacg tctttggcag ggggcccaga   972

agaatgcttg gaagaccagc ctctgacacc atcagtgagc ggatgggtgc agaaattcat  1032

tattccagat cgctgacaga tatcacatat ttgaaagat  gaatagggcg acatggctc   1092

agatgtgtgt ctcccaggac aagtgtttca tcttcacttg acgagctatt tagtggaaaa  1152

accacaggcg cagccctttg acaggcatcc cattcatcaa agtgtctaa  ctatttgata  1212

ctggggagat aacttatttt tctttttca  ttggcttgac atgtgtatct gttcatgtca  1272

aggtttataa atatatattt ttaataaatg tgctctattt tttagcatga accaaatact  1332

tggagaggca ctcccagatc catagagctt tccttagttt tatctgcttt gtccctcct   1392

cccccaacta cagatgttct gttgtggagc cattctagtc cttttgtctc atcttgagtc  1452

ttttaccttg cgcttttgtt ctctctctct cctctctctc tgcctctttg gtctgaagga  1512

cattttccca tactgtcagc catggttttg ggtgcatgtt ttaagattgt ccattgagtg  1572
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```
gcttttttgtt gttatctcgg agatataaaa tgattgtggg catgcagacc ttagatgcac    1632

cctatcttta ctgagaatta tgcatgaata agggctgagt gatagatcag cttaaaatta    1692

aaaggactac ctttgaggaa gaagagcgtg gctatatttg cagatgaact tttgaacaga    1752

atattcagct tcttaccggc agcgttattg tttcattctt gtgaccattc gtttatcaga    1812

ttttgatttt agcggtcatg taccgcgaga gttgggaaga acaaggggga aagctcggga    1872

ttaggtgcat tactccttcc tttgcaagat acctgggatc ctcctcaaaa gcgggtgggg    1932

tataaatgac acaagaactc ccccaggaga tctcatggtg attcaggctg tgaggacagc    1992

cctgtgacag gtgactttc agggacatga ggagggggatt taatgattgc cctaaaggac    2052

ttctgtattt ttaaagcccc tggtttacac ccacatgaag ctatttcctc tctggcaggg    2112

atggttgcat aaaaacaaat tagctcccctt ctggctccct gaaatgggcc cttgcctggc    2172

tacagtggca tggccttaaa gagagggtta gtattccttc tgccattgcc agctgtatta    2232

gtctgtttc acactgctga aaaagacatc cccaagactg ggcaatttac aaagaaagag    2292

gtttattgga cttacagttc cacgtggctg aggaggcctc acaattacgg tggaaggtga    2352

aaggcacgtc tcacatggtg gcagacaaga gaagtgaaca tgtgcaagga gactcccatt    2412

tttaaaacag atctcgtgag acttttttcac tatcatgcaa acagcatggg aaacctgccc    2472

ccgtgattca gttacctccc accgggtccc tcccacaaca catgggtatt caagatgaga    2532

tttgggtggg gttacagcca aactctatca ccagccttgc ccctgggcag aagcagcagc    2592

agtctgcctg gctggattca aatgattctg aggcttctat agtctatgcc tgcagatctc    2652

tccctcaccc atgctatagt gtctgaaatt ccaccattag agagtcattt cttgggctct    2712

gttaaatgga ccaggctctt ttataaagaa aatgcccctg agcagctggc tctggcattg    2772

atttatgata tcttctcttc cctgccagaa ggaaggaagc taaggtgcat gtagggcgta    2832

ctgtgtgccc aggcactgtg ccagatgctt tggatacttg gagtcattga attcttgtag    2892

taaccctgtg agagagggag tcttttctcc acattgtaga agaaggaaaa agggctcaga    2952

gaggtcaaga aatgtccctg agatcacatg gcttctagtg gagtcaagat ccaaacccaa    3012

tgtgtctgat tccttagccc ttgggggtcc ggaggctgct gaacaagaaa ggaggtggag    3072

aggagagaaa gctgcaggca taccaccgca caccttctc cctcccctgt aaaaacaacc    3132

ctgggaactc cctggacact agcagaatat catacactaa ggataaggga tgagaggagg    3192

ctggttagaa ataaagcagt gtcaggggga aggagctact cagtaggctc tgtgtgattc    3252

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<211> 65
<212> PRT
<213> Homo sapiens

<400> 52

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1               5                   10                  15


Lys Met Val Ile Thr Ser Glu Asn Asp Glu Asp Arg Gly Gly Gln Glu
            20                  25                  30


Lys Glu Ser Lys Glu Glu Ser Val Leu Ala Met Leu Gly Ile Ile Gly
        35                  40                  45


Thr Ile Leu Asn Leu Ile Val Ile Ile Phe Val Tyr Ile Tyr Thr Thr
    50                  55                  60


Leu
65
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<210> 53
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<212> DNA
<213> Homo sapiens

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<221> CDS
<222> (189)..(2720)
<223>

<400> 53

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ttgggcactc agtctccctg gcgagcgacg ggcagaaatc tcgaaccagt ggagcgcact     120

cgtaacctgg atcccagaag gtcgcgaagg cagtaccgtt tcctcagcgg cggactgctg     180

cagtaaga atg tct ttt cca cct cat ttg aat cgc cct ccc atg gga atc      230
        Met Ser Phe Pro Pro His Leu Asn Arg Pro Pro Met Gly Ile
        1               5                   10

cca gca ctc cca cca ggg atc cca ccc ccg cag ttt cca gga ttt cct      278
Pro Ala Leu Pro Pro Gly Ile Pro Pro Pro Gln Phe Pro Gly Phe Pro
15                  20                  25                  30

cca cct gta cct cca ggg acc cca atg att cct gta cca atg agc att      326
Pro Pro Val Pro Pro Gly Thr Pro Met Ile Pro Val Pro Met Ser Ile
                35                  40                  45

atg gct cct gct cca act gtc tta gta ccc act gtg tct atg gtt gga      374
Met Ala Pro Ala Pro Thr Val Leu Val Pro Thr Val Ser Met Val Gly
                50                  55                  60

aag cat ttg ggc gca aga aag gat cat cca ggc tta aag gct aaa gaa      422
Lys His Leu Gly Ala Arg Lys Asp His Pro Gly Leu Lys Ala Lys Glu
            65                  70                  75

aat gat gaa aat tgt ggt cct act acc act gtt ttt gtt ggc aac att      470
Asn Asp Glu Asn Cys Gly Pro Thr Thr Thr Val Phe Val Gly Asn Ile
    80                  85                  90
```

```
tcc gag aaa gct tca gac atg ctt ata aga caa ctc tta gct aaa tgt      518
Ser Glu Lys Ala Ser Asp Met Leu Ile Arg Gln Leu Leu Ala Lys Cys
95              100                 105                 110

ggt ttg gtt ttg agc tgg aag aga gta caa ggt gct tcc gga aag ctt      566
Gly Leu Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser Gly Lys Leu
                115                 120                 125

caa gcc ttc gga ttc tgt gag tac aag gag cca gaa tct acc ctc cgt      614
Gln Ala Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser Thr Leu Arg
            130                 135                 140

gca ctc aga tta tta cat gac ctg caa att gga gag aaa aag cta ctc      662
Ala Leu Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys Lys Leu Leu
        145                 150                 155

gtt aaa gtt gat gca aag aca aag gca cag ctg gat gaa tgg aaa gca      710
Val Lys Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu Trp Lys Ala
    160                 165                 170

aag aag aaa gct tct aat ggg aat gca agg cca gaa act gtc act aat      758
Lys Lys Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr Val Thr Asn
175             180                 185                 190

gac gat gaa gaa gcc ttg gat gaa gaa aca aag agg aga gat cag atg      806
Asp Asp Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg Asp Gln Met
                195                 200                 205

att aaa ggg gct att gaa gtt tta att cgt gaa tac tcc agt gag cta      854
Ile Lys Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser Ser Glu Leu
            210                 215                 220

aat gcc ccc tca cag gaa tct gat tct cac ccc agg aag aag aag aag      902
Asn Ala Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys Lys Lys Lys
        225                 230                 235

gaa aag aag gag gac att ttc cgc aga ttt cca gtg gcc cca ctg atc      950
Glu Lys Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala Pro Leu Ile
    240                 245                 250

cct tat cca ctc atc act aag gag gat ata aat gct ata gaa atg gaa      998
Pro Tyr Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile Glu Met Glu
255             260                 265                 270

gaa gac aaa aga gac ctg ata tct cga gag atc agc aaa ttc aga gac      1046
Glu Asp Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys Phe Arg Asp
            275                 280                 285

aca cat aag aaa ctg gaa gaa gag aaa ggc aaa aag gaa aaa gaa aga      1094
Thr His Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu Lys Glu Arg
            290                 295                 300

cag gaa att gag aaa gaa cgg aga gaa aga gag agg gag cgt gaa agg      1142
Gln Glu Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg
        305                 310                 315

gaa cga gaa agg cga gaa cgg gaa cga gaa agg gaa aga gaa cgt gaa      1190
Glu Arg Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
        320                 325                 330

cga gaa aag gag aaa gaa cgg gag cgg gaa cga gaa cgg gat agg gac      1238
Arg Glu Lys Glu Lys Glu Arg Glu Arg Glu Arg Glu Arg Asp Arg Asp
335             340                 345                 350
```

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.gt .... ... ... a.a gag aga gac cga gat cgg gat cga gag aga gat        1286
Ala Asp Arg Thr Lys Glu Arg Asp Arg Asp Arg Asp Arg Glu Arg Asp
                355                 360                 365

cgt gac cgg gat aga gaa agg agc tca gat cgt aat aag gat cgc agt        1334
Arg Asp Arg Asp Arg Glu Arg Ser Ser Asp Arg Asn Lys Asp Arg Ser
            370                 375                 380

cga tca aga gaa aaa agc aga gat cgt gaa agg gaa cga gag cgg gaa        1382
Arg Ser Arg Glu Lys Ser Arg Asp Arg Glu Arg Glu Arg Glu Arg Glu
        385                 390                 395

aga gag aga gag aga gaa cga gag cga gaa cga gaa cgg gag cga gag        1430
Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
    400                 405                 410

aga gag cga gag agg gaa cgg gag cga gaa aga gaa aaa gac aaa aaa        1478
Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Asp Lys Lys
415                 420                 425                 430

cgg gac cga gaa gaa gat gaa gaa gat gca tac gaa cga aga aaa ctt        1526
Arg Asp Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg Arg Lys Leu
                435                 440                 445

gaa aga aaa ctc cga gag aaa gaa gct gct tat caa gag cgc ctt aag        1574
Glu Arg Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu Arg Leu Lys
            450                 455                 460

aat tgg gaa atc aga gaa cga aag aaa acc cgg gaa tat gag aaa gaa        1622
Asn Trp Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr Glu Lys Glu
            465                 470                 475

gct gaa aga gaa gaa gaa aga aga aga gaa atg gcc aaa gaa gct aaa        1670
Ala Glu Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys Glu Ala Lys
    480                 485                 490

cga cta aaa gaa ttc tta gaa gac tat gat gat gat aga gat gac ccc        1718
Arg Leu Lys Glu Phe Leu Glu Asp Tyr Asp Asp Asp Arg Asp Asp Pro
495                 500                 505                 510

aaa tat tac aga gga agt gct ctt cag aaa agg ttg cgt gat aga gaa        1766
Lys Tyr Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg Asp Arg Glu
                515                 520                 525

aag gaa atg gaa gca gat gaa cga gat agg aag aga gag aag gag gag        1814
Lys Glu Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu Lys Glu Glu
                530                 535                 540

ctt gag gaa atc agg cag cgc ctt ctg gca gaa ggg cat cca gat cca        1862
Leu Glu Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His Pro Asp Pro
            545                 550                 555

gat gca gag ctc cag agg atg gaa caa gag gct gag agg cgc agg cag        1910
Asp Ala Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg Arg Arg Gln
    560                 565                 570

cca caa ata aag caa gag cca gaa tca gaa gag gag gaa gaa gaa aag        1958
Pro Gln Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu Glu Glu Glu Lys
575                 580                 585                 590

... ... aaa gaa gaa aaa cga gaa gaa ccc atg gaa gag gaa gag gag        2006
Gln Glu Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu Glu Glu Glu
            595                 600                 605
```

```
cca gag caa aag cct tgt ctg aaa cct act ctg agg ccc atc agc tct      2054
Pro Glu Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro Ile Ser Ser
            610                 615                 620

gct cca tct gtt tcc tct gcc agt ggc aat gca aca cct aac act cct      2102
Ala Pro Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro Asn Thr Pro
            625                 630                 635

ggg gat gag tct ccc tgt ggt att att att cct cat gaa aac tca cca      2150
Gly Asp Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu Asn Ser Pro
            640                 645                 650

gat caa cag caa cct gag gag cat agg cca aaa ata gga cta agt ctt      2198
Asp Gln Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly Leu Ser Leu
655                 660                 665                 670

aaa ctg ggt gct tcc aat agt cct ggt cag cct aat tct gtg aag aga      2246
Lys Leu Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser Val Lys Arg
            675                 680                 685

aag aaa cta cct gta gat agt gtc ttt aac aaa ttt gag gat gaa gac      2294
Lys Lys Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu Asp Glu Asp
            690                 695                 700

agt gat gac gta ccc cga aaa agg aaa ctg gtt ccc ttg gat tat ggt      2342
Ser Asp Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu Asp Tyr Gly
            705                 710                 715

gaa gat gat aaa aat gca acc aaa ggc act gta aac act gaa gaa aag      2390
Glu Asp Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr Glu Glu Lys
            720                 725                 730

cgt aaa cac att aag agt ctc att gag aaa atc cct aca gcc aaa cct      2438
Arg Lys His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr Ala Lys Pro
735                 740                 745                 750

gag ctc ttc gct tat ccc ctg gat tgg tct att gtg gat tct ata ctg      2486
Glu Leu Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp Ser Ile Leu
            755                 760                 765

atg gaa cgt cga att aga cca tgg att aat aag aaa atc ata gaa tat      2534
Met Glu Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile Ile Glu Tyr
            770                 775                 780

ata ggt gaa gaa gaa gct aca tta gtt gat ttt gtt tgt tct aag gtt      2582
Ile Gly Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys Ser Lys Val
            785                 790                 795

atg gct cat agt tca ccc cag agc att tta gat gat gtt gcc atg gta      2630
Met Ala His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val Ala Met Val
            800                 805                 810

ctt gat gaa gaa gca gaa gtt ttt ata gtc aaa atg tgg aga tta ttg      2678
Leu Asp Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp Arg Leu Leu
815                 820                 825                 830

ata tat gaa aca gaa gcc aag aaa att ggt ctt gtg aag taa            2720
Ile Tyr Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
                835                 840

aacttttat atttagagtt ccattcaga tttcttcttt gccacccttt taaggacttt      2780

gaattttct ttgtctttga agacattgtg agatctgtaa tttttttttt ttgtagaaaa      2840
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tgtgaatttt  ttggtcctct  aatttgttgt  tgccctgtgt  actcccttgg  ttgtaaagtc  2900

atctgaatcc  ttggttctct  ttatactcac  caggtacaaa  ttactggtat  gttttataag  2960

ccgcagctac  tgtacacagc  ctatctgata  taatcttgtt  ctgctgattt  gtttcttgta  3020

aatattaaaa  cgactcccca  attattttgc  agaattgcac  ttaatattga  aatgtactgt  3080

ataggaacca  acatgaacaa  ttttaattga  aaacaccagt  cataaactat  taccacccccc  3140

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ctaaagaata  gaattgtaaa  ggaaaagtgg  tactgttcca  acctgaaatg  tctgttataa  3380

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tctgtttatt  taacaaaaaa  ttcatcatac  caaaaagtgt  aagtgaaaac  cccctttaaa  3680

acaaaacaaa  aaaatgaaat  aaaattaggc  aaattgacag  acagtgagag  ttttacaaac  3740

atgataggta  ttctgctcgg  caatttgtaa  gtttacatgt  tatttaagga  taaaggtaaa  3800

tcattcaagg  cagttaccaa  ccactaacta  tttgttttca  tttttgtctt  gtagaaggtt  3860

tatatcttgt  tttaccttgg  ctcattagtg  tttaaaaatg  tactgatgat  gtgcttagag  3920

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aaacgtaaga  agttttaaac  agcttttcac  acaaattaga  tgcaactgtt  cccatgtctg  4040

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atatttgaaa  aaaaaaaaaa  aaaaaaaa                                        4248


<210>   54
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<213>   Homo sapiens

<400>   54

Met Ser Phe Pro Pro His Leu Asn Arg Pro Pro Met Gly Ile Pro Ala
1               5                   10                  15


Leu Pro Pro Gly Ile Pro Pro Pro Gln Phe Pro Gly Phe Pro Pro Pro
            20                  25                  30
```

Val Pro Pro Gly Thr Pro Met Ile Pro Val Pro Met Ser Ile Met Ala
        35   40   45

Pro Ala Pro Thr Val Leu Val Pro Thr Val Ser Met Val Gly Lys His
    50   55   60

Leu Gly Ala Arg Lys Asp His Pro Gly Leu Lys Ala Lys Glu Asn Asp
65   70   75   80

Glu Asn Cys Gly Pro Thr Thr Thr Val Phe Val Gly Asn Ile Ser Glu
                85   90   95

Lys Ala Ser Asp Met Leu Ile Arg Gln Leu Leu Ala Lys Cys Gly Leu
                100   105   110

Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser Gly Lys Leu Gln Ala
        115   120   125

Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser Thr Leu Arg Ala Leu
    130   135   140

Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys Lys Leu Leu Val Lys
145   150   155   160

Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu Trp Lys Ala Lys Lys
                165   170   175

Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr Val Thr Asn Asp Asp
                180   185   190

Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg Asp Gln Met Ile Lys
        195   200   205

Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser Ser Glu Leu Asn Ala
    210   215   220

Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys Lys Lys Lys Glu Lys
225   230   235   240

Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala Pro Leu Ile Pro Tyr
                245   250   255

Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile Glu Met Glu Glu Asp
                260   265   270

Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys Phe Arg Asp Thr His
        275   280   285

Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu Lys Glu Arg Gln Glu
    290   295   300

Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg
305   310   315   320

Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
                325   330   335

Lys Glu Lys Glu Arg Glu Arg Glu Arg Glu Arg Asp Arg Asp Arg Asp
                340   345   350

Arg Thr Lys Glu Arg Asp Arg Asp Arg Asp Arg Glu Arg Asp Arg Asp
                355   360   365

Arg Asp Arg Glu Arg Ser Ser Asp Arg Asn Lys Asp Arg Ser Arg Ser
    370   375   380

Arg Glu Lys Ser Arg Asp Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
385   390   395   400

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
                405   410   415

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Asp Lys Lys Arg Asp
                420   425   430

Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg Arg Lys Leu Glu Arg
    435   440   445

Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu Arg Leu Lys Asn Trp
    450   455   460

Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr Glu Lys Glu Ala Glu
465   470   475   480

Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys Glu Ala Lys Arg Leu
                485   490   495

Lys Glu Phe Leu Glu Asp Tyr Asp Asp Arg Asp Asp Pro Lys Tyr
                500   505   510

Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg Asp Arg Glu Lys Glu
        515   520   525

Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu Lys Glu Glu Leu Glu
    530   535   540

Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His Pro Asp Pro Asp Ala
545   550   555   560

Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg Arg Arg Gln Pro Gln
                565   570   575

Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu Glu Glu Lys Gln Glu
            580   585   590

Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu Glu Glu Pro Glu
            595   600   605

Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro Ile Ser Ser Ala Pro
    610   615   620

Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro Asn Thr Pro Gly Asp
625   630   635   640

Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu Asn Ser Pro Asp Gln
            645   650   655

Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly Leu Ser Leu Lys Leu
            660   665   670

Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser Val Lys Arg Lys Lys
            675   680   685

Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu Asp Glu Asp Ser Asp
    690   695   700

Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu Asp Tyr Gly Glu Asp
705   710   715   720

Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr Glu Glu Lys Arg Lys
            725   730   735

His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr Ala Lys Pro Glu Leu
            740   745   750

Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp Ser Ile Leu Met Glu
    755   760   765

Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile Ile Glu Tyr Ile Gly
    770   775   780

Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys Ser Lys Val Met Ala
785   790   795   800

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His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val Ala Met Val Leu Asp
            805                 810                 815


Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp Arg Leu Leu Ile Tyr
            820                 825                 830


Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
            835                 840


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cgtaacctgg atcccagaag gtcgcgaagg cagtaccgtt tcctcagcgg cggactgctg    180

cagtaaga atg tct ttt cca cct cat ttg aat cgc cct ccc atg gga atc    230
        Met Ser Phe Pro Pro His Leu Asn Arg Pro Pro Met Gly Ile
          1               5                  10

cca gca ctc cca cca ggg atc cca ccc ccg cag ttt cca gga ttt cct    278
Pro Ala Leu Pro Pro Gly Ile Pro Pro Pro Gln Phe Pro Gly Phe Pro
15                  20                  25                  30

cca cct gta cct cca ggg acc cca atg att cct gta cca atg agc att    326
Pro Pro Val Pro Pro Gly Thr Pro Met Ile Pro Val Pro Met Ser Ile
                35                  40                  45

atg gct cct gct cca act gtc tta gta ccc act gtg tct atg gtt gga    374
Met Ala Pro Ala Pro Thr Val Leu Val Pro Thr Val Ser Met Val Gly
            50                  55                  60

aag cat ttg ggc gca aga aag gat cat cca ggc tta aag gct aaa gaa    422
Lys His Leu Gly Ala Arg Lys Asp His Pro Gly Leu Lys Ala Lys Glu
            65                  70                  75

aat gat gaa aat tgt ggt cct act acc act gtt ttt gtt ggc aac att    470
Asn Asp Glu Asn Cys Gly Pro Thr Thr Thr Val Phe Val Gly Asn Ile
    80                  85                  90

tcc gag aaa gct tca gac atg ctt ata aga caa ctc tta gct aaa tgt    518
Ser Glu Lys Ala Ser Asp Met Leu Ile Arg Gln Leu Leu Ala Lys Cys
95                  100                 105                 110

ggt ttg gtt ttg agc tgg aag aga gta caa ggt gct tcc gga aag ctt    566
Gly Leu Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser Gly Lys Leu
                115                 120                 125

caa gcc ttc gga ttc tgt gag tac aag gag cca gaa tct acc ctc cgt    614
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Gln Ala Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser Thr Leu Arg
        130             135             140

gca ctc aga tta tta cat gac ctg caa att gga gag aaa aag cta ctc      662
Ala Leu Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys Lys Leu Leu
        145             150             155

gtt aaa gtt gat gca aag aca aag gca cag ctg gat gaa tgg aaa gca      710
Val Lys Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu Trp Lys Ala
    160             165             170

aag aag aaa gct tct aat ggg aat gca agg cca gaa act gtc act aat      758
Lys Lys Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr Val Thr Asn
175             180             185             190

gac gat gaa gaa gcc ttg gat gaa gaa aca aag agg aga gat cag atg      806
Asp Asp Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg Asp Gln Met
            195             200             205

att aaa ggg gct att gaa gtt tta att cgt gaa tac tcc agt gag cta      854
Ile Lys Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser Ser Glu Leu
            210             215             220

aat gcc ccc tca cag gaa tct gat tct cac ccc agg aag aag aag aag      902
Asn Ala Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys Lys Lys Lys
            225             230             235

gaa aag aag gag gac att ttc cgc aga ttt cca gtg gcc cca ctg atc      950
Glu Lys Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala Pro Leu Ile
        240             245             250

cct tat cca ctc atc act aag gag gat ata aat gct ata gaa atg gaa      998
Pro Tyr Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile Glu Met Glu
255             260             265             270

gaa gac aaa aga gac ctg ata tct cga gag atc agc aaa ttc aga gac     1046
Glu Asp Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys Phe Arg Asp
            275             280             285

aca cat aag aaa ctg gaa gaa gag aaa ggc aaa aag gaa aaa gaa aga     1094
Thr His Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu Lys Glu Arg
            290             295             300

cag gaa att gag aaa gaa cgg aga gaa aga gag agg gag cgt gaa agg     1142
Gln Glu Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg
        305             310             315

gaa cga gaa agg cga gaa cgg gaa cga gaa agg gaa cga gag cgg gaa     1190
Glu Arg Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
        320             325             330

aga gag aga gag aga gaa cga gag cga gaa cga gaa cgg gag cga gag     1238
Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
335             340             345             350

aga gag cga gag agg gaa cgg gag cga gaa aga gaa aaa gac aaa aaa     1286
Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Asp Lys Lys
            355             360             365

cgg gac cga gaa gaa gat gaa gaa gat gca tac gaa cga aga aaa ctt     1334
Arg Asp Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg Arg Lys Leu
            370             375             380

gaa aga aaa ctc cga gag aaa gaa gct gct tat caa gag cgc ctt aag     1382
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Glu Arg Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu Arg Leu Lys
        385                 390                 395

aat tgg gaa atc aga gaa cga aag aaa acc cgg gaa tat gag aaa gaa        1430
Asn Trp Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr Glu Lys Glu
    400                 405                 410

gct gaa aga gaa gaa gaa aga aga aga gaa atg gcc aaa gaa gct aaa        1478
Ala Glu Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys Glu Ala Lys
415                 420                 425                 430

cga cta aaa gaa ttc tta gaa gac tat gat gat gat aga gat gac ccc        1526
Arg Leu Lys Glu Phe Leu Glu Asp Tyr Asp Asp Asp Arg Asp Asp Pro
                435                 440                 445

aaa tat tac aga gga agt gct ctt cag aaa agg ttg cgt gat aga gaa        1574
Lys Tyr Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg Asp Arg Glu
            450                 455                 460

aag gaa atg gaa gca gat gaa cga gat agg aag aga gag aag gag gag        1622
Lys Glu Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu Lys Glu Glu
        465                 470                 475

ctt gag gaa atc agg cag cgc ctt ctg gca gaa ggg cat cca gat cca        1670
Leu Glu Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His Pro Asp Pro
    480                 485                 490

gat gca gag ctc cag agg atg gaa caa gag gct gag agg cgc agg cag        1718
Asp Ala Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg Arg Arg Gln
495                 500                 505                 510

cca caa ata aag caa gag cca gaa tca gaa gag gag gaa gaa gaa aag        1766
Pro Gln Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu Glu Glu Glu Lys
                515                 520                 525

caa gaa aaa gaa gaa aaa cga gaa gaa ccc atg gaa gag gaa gag gag        1814
Gln Glu Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu Glu Glu Glu
            530                 535                 540

cca gag caa aag cct tgt ctg aaa cct act ctg agg ccc atc agc tct        1862
Pro Glu Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro Ile Ser Ser
        545                 550                 555

gct cca tct gtt tcc tct gcc agt ggc aat gca aca cct aac act cct        1910
Ala Pro Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro Asn Thr Pro
        560                 565                 570

ggg gat gag tct ccc tgt ggt att att att cct cat gaa aac tca cca        1958
Gly Asp Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu Asn Ser Pro
575                 580                 585                 590

gat caa cag caa cct gag gag cat agg cca aaa ata gga cta agt ctt        2006
Asp Gln Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly Leu Ser Leu
                595                 600                 605

aaa ctg ggt gct tcc aat agt cct ggt cag cct aat tct gtg aag aga        2054
Lys Leu Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser Val Lys Arg
            610                 615                 620

aag aaa cta cct gta gat agt gtc ttt aac aaa ttt gag gat gaa gac        2102
Lys Lys Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu Asp Glu Asp
        625                 630                 635

agt gat gac gta ccc cga aaa agg aaa ctg gtt ccc ttg gat tat ggt        2150
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Ser Asp Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu Asp Tyr Gly
    640             645             650

gaa gat gat aaa aat gca acc aaa ggc act gta aac act gaa gaa aag    2198
Glu Asp Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr Glu Glu Lys
655             660             665             670

cgt aaa cac att aag agt ctc att gag aaa atc cct aca gcc aaa cct    2246
Arg Lys His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr Ala Lys Pro
                675             680             685

gag ctc ttc gct tat ccc ctg gat tgg tct att gtg gat tct ata ctg    2294
Glu Leu Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp Ser Ile Leu
                690             695             700

atg gaa cgt cga att aga cca tgg att aat aag aaa atc ata gaa tat    2342
Met Glu Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile Ile Glu Tyr
            705             710             715

ata ggt gaa gaa gaa gct aca tta gtt gat ttt gtt tgt tct aag gtt    2390
Ile Gly Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys Ser Lys Val
    720             725             730

atg gct cat agt tca ccc cag agc att tta gat gat gtt gcc atg gta    2438
Met Ala His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val Ala Met Val
735             740             745             750

ctt gat gaa gaa gca gaa gtt ttt ata gtc aaa atg tgg aga tta ttg    2486
Leu Asp Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp Arg Leu Leu
            755             760             765

ata tat gaa aca gaa gcc aag aaa att ggt ctt gtg aag taa            2528
Ile Tyr Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
            770             775

aacttttat atttagagtt ccatttcaga tttcttcttt gccacccttt taaggacttt    2588

gaattttct ttgtctttga agacattgtg agatctgtaa tttttttttt ttgtagaaaa    2648

tgtgaatttt ttggtcctct aatttgttgt tgccctgtgt actcccttgg ttgtaaagtc    2708

atctgaatcc ttggttctct ttatactcac caggtacaaa ttactggtat gttttataag    2768

ccgcagctac tgtacacagc ctatctgata taatcttgtt ctgctgattt gtttcttgta    2828

aatattaaaa cgactcccca attattttgc agaattgcac ttaatattga aatgtactgt    2888

ataggaacca acatgaacaa ttttaattga aaacaccagt cataaactat taccacccc    2948

actctcttt gatcagaaat ggcaagccct tgtgaaggca tggagtttaa aattggaatg    3008

caaaaattag cagacaatcc attcctactg tatttctgta tgaatgtgtt tgtgaatgta    3068

tgtgtaaaag tctttctttt ccctaatttg ctttggtggg gtccttaaaa catttcccaa    3128

ctaaagaata gaattgtaaa ggaaaagtgg tactgttcca acctgaaatg tctgttataa    3188

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gatcatagtg attttttcctt ttaattttat tgctcagaaa tgaggcatat cctaaaaatc    3368

ctggagagct gtatttaatg cattttttgca ctaattggtc cttagtttaa ttctattgta    3428
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atgataggta ttctgctcgg caatttgtaa gtttacatgt tatttaagga taaaggtaaa 3608

tcattcaagg cagttaccaa ccactaacta tttgttttca tttttgtctt gtagaaggtt 3668

tatatcttgt tttaccttgg ctcattagtg tttaaaaatg tactgatgat gtgcttagag 3728

aaattcctgg ggctttcttc gttgtagatc agaatttcac cagggagtaa aattacctga 3788

aaacgtaaga agttttaaac agcttttcac acaaattaga tgcaactgtt cccatgtctg 3848

agtacttatt taaaagaaag gtaaagattg gcctgttaga aaaagcataa tgtgagcttt 3908

ggattactgg attttttttt tttttaaaca cacctggaga ggacatttga aaacactgtt 3968

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Leu Pro Pro Gly Ile Pro Pro Pro Gln Phe Pro Gly Phe Pro Pro Pro
                20   25   30

Val Pro Pro Gly Thr Pro Met Ile Pro Val Pro Met Ser Ile Met Ala
            35   40   45

Pro Ala Pro Thr Val Leu Val Pro Thr Val Ser Met Val Gly Lys His
    50   55   60

Leu Gly Ala Arg Lys Asp His Pro Gly Leu Lys Ala Lys Glu Asn Asp
65   70   75   80

Glu Asn Cys Gly Pro Thr Thr Thr Val Phe Val Gly Asn Ile Ser Glu
                85   90   95

Lys Ala Ser Asp Met Leu Ile Arg Gln Leu Leu Ala Lys Cys Gly Leu
                100   105   110

Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser Gly Lys Leu Gln Ala
            115   120   125

Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser Thr Leu Arg Ala Leu

Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys Lys Leu Leu Val Lys
145   150   155   160

Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu Trp Lys Ala Lys Lys
                165   170   175

Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr Val Thr Asn Asp Asp
                180   185   190

Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg Asp Gln Met Ile Lys
        195   200   205

Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser Ser Glu Leu Asn Ala
    210   215   220

Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys Lys Lys Lys Glu Lys
225   230   235   240

Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala Pro Leu Ile Pro Tyr
                245   250   255

Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile Glu Met Glu Glu Asp
                260   265   270

Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys Phe Arg Asp Thr His
        275   280   285

Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu Lys Glu Arg Gln Glu
    290   295   300

Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg
305   310   315   320

Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
                325   330   335

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
            340   345   350

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Asp Lys Lys Arg Asp
        355   360   365

Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg Arg Lys Leu Glu Arg
    370   375   380

Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu Arg Leu Lys Asn Trp

Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr Glu Lys Glu Ala Glu
                    405   410   415

Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys Glu Ala Lys Arg Leu
            420   425   430

Lys Glu Phe Leu Glu Asp Tyr Asp Asp Asp Arg Asp Asp Pro Lys Tyr
            435   440   445

Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg Asp Arg Glu Lys Glu
    450   455   460

Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu Lys Glu Glu Leu Glu
465   470   475   480

Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His Pro Asp Pro Asp Ala
            485   490   495

Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg Arg Arg Gln Pro Gln
            500   505   510

Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu Glu Glu Lys Gln Glu
            515   520   525

Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu Glu Glu Pro Glu
    530   535   540

Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro Ile Ser Ser Ala Pro
545   550   555   560

Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro Asn Thr Pro Gly Asp
            565   570   575

Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu Asn Ser Pro Asp Gln
            580   585   590

Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly Leu Ser Leu Lys Leu
            595   600   605

Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser Val Lys Arg Lys Lys
    610   615   620

Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu Asp Glu Asp Ser Asp
625   630   635   640

Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu Asp Tyr Gly Glu Asp

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Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr Glu Glu Lys Arg Lys
            660                 665                 670

His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr Ala Lys Pro Glu Leu
        675                 680                 685

Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp Ser Ile Leu Met Glu
        690                 695                 700

Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile Ile Glu Tyr Ile Gly
705                 710                 715                 720

Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys Ser Lys Val Met Ala
                725                 730                 735

His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val Ala Met Val Leu Asp
            740                 745                 750

Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp Arg Leu Leu Ile Tyr
        755                 760                 765

Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
    770                 775
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                                                     Met Ala Trp
                                                      1

aaa aca ctt ccc att tac ctg ttg ttg ctg ctg tct gtt ttc gtg att      165
Lys Thr Leu Pro Ile Tyr Leu Leu Leu Leu Leu Ser Val Phe Val Ile
    5                   10                  15

cag caa gtt tca tct caa gag ctt tcc tgt aaa ggc cgc tgc ttt gag      213
Gln Gln Val Ser Ser Gln Glu Leu Ser Cys Lys Gly Arg Cys Phe Glu
20                  25                  30                  35

tcc ttc gag aga ggg agg gag tgt gac tgc gac gcc caa tgt aag aag      261
Ser Phe Glu Arg Gly Arg Glu Cys Asp Cys Asp Ala Gln Cys Lys Lys
                40                  45                  50
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tat gac aag tgc tgt ccc gat tat gag agt ttc tgt gca gaa gtg cat      309
Tyr Asp Lys Cys Cys Pro Asp Tyr Glu Ser Phe Cys Ala Glu Val His
            55                  60                  65

aat ccc aca tca cca cca tct tca aag aaa gca cct cca cct tca gga      357
Asn Pro Thr Ser Pro Pro Ser Ser Lys Lys Ala Pro Pro Pro Ser Gly
            70                  75                  80

gca tct caa acc atc aaa tca aca acc aaa cgt tca ccc aaa cca cca      405
Ala Ser Gln Thr Ile Lys Ser Thr Thr Lys Arg Ser Pro Lys Pro Pro
    85                  90                  95

aac aag aag aag act aag aaa gtt ata gaa tca gag gaa ata aca gaa      453
Asn Lys Lys Lys Thr Lys Lys Val Ile Glu Ser Glu Glu Ile Thr Glu
100                 105                 110                 115

gta aaa gat aac aag aag aac aga act aaa aag aaa cct acc ccc aaa      501
Val Lys Asp Asn Lys Lys Asn Arg Thr Lys Lys Lys Pro Thr Pro Lys
                120                 125                 130

cca cca gtt gta gat gaa gct gga agt gga ttg gac aat ggt gac ttc      549
Pro Pro Val Val Asp Glu Ala Gly Ser Gly Leu Asp Asn Gly Asp Phe
            135                 140                 145

aag gtc aca act cct gac acg tct acc acc caa cac aat aaa gtc agc      597
Lys Val Thr Thr Pro Asp Thr Ser Thr Thr Gln His Asn Lys Val Ser
            150                 155                 160

aca tct ccc aag atc aca aca gca aaa cca ata aat ccc aga ccc agt      645
Thr Ser Pro Lys Ile Thr Thr Ala Lys Pro Ile Asn Pro Arg Pro Ser
    165                 170                 175

ctt cca cct aat tct gat aca tct aaa gag acg tct ttg aca gtg aat      693
Leu Pro Pro Asn Ser Asp Thr Ser Lys Glu Thr Ser Leu Thr Val Asn
180                 185                 190                 195

aaa gag aca aca gtt gaa act aaa gaa act act aca aca aat aaa cag      741
Lys Glu Thr Thr Val Glu Thr Lys Glu Thr Thr Thr Asn Lys Gln
            200                 205                 210

act tca act gat gga aaa gag aag act act tcc gct aaa gag aca caa      789
Thr Ser Thr Asp Gly Lys Glu Lys Thr Thr Ser Ala Lys Glu Thr Gln
            215                 220                 225

agt ata gag aaa aca tct gct aaa gat tta gca ccc aca tct aaa gtg      837
Ser Ile Glu Lys Thr Ser Ala Lys Asp Leu Ala Pro Thr Ser Lys Val
            230                 235                 240

ctg gct aaa cct aca ccc aaa gct gaa act aca acc aaa ggc cct gct      885
Leu Ala Lys Pro Thr Pro Lys Ala Glu Thr Thr Thr Lys Gly Pro Ala
    245                 250                 255

ctc acc act ccc aag gag ccc acg ccc acc act ccc aag gag cct gca      933
Leu Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Pro Lys Glu Pro Ala
260                 265                 270                 275

tct acc aca ccc aaa gag ccc aca cct acc acc atc aag tct gca ccc      981
Ser Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Ile Lys Ser Ala Pro
                280                 285                 290

acc acc ccc aag gag cct gca ccc acc acc acc aag tct gca ccc acc     1029
Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr
            295                 300                 305
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act ccc aag gag cct gca ccc acc acc acc aag gag cct gca ccc acc      1077
Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro Ala Pro Thr
        310             315             320

act ccc aag gag cct gca ccc acc acc acc aag gag cct gca ccc acc      1125
Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro Ala Pro Thr
        325             330             335

acc acc aag tct gca ccc acc act ccc aag gag cct gca ccc acc acc      1173
Thr Thr Lys Ser Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
340             345             350             355

ccc aag aag cct gcc cca act acc ccc aag gag cct gca ccc acc act      1221
Pro Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
            360             365             370

ccc aag gag cct aca ccc acc act ccc aag gag cct gca ccc acc acc      1269
Pro Lys Glu Pro Thr Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
            375             380             385

aag gag cct gca ccc acc act ccc aaa gag cct gca ccc act gcc ccc      1317
Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Ala Pro
        390             395             400

aag aag cct gcc cca act acc ccc aag gag cct gca ccc acc act ccc      1365
Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro
    405             410             415

aag gag cct gca ccc acc acc acc aag gag cct tca ccc acc act ccc      1413
Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro Ser Pro Thr Thr Pro
420             425             430             435

aag gag cct gca ccc acc acc acc aag tct gca ccc acc act acc aag      1461
Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr Thr Thr Lys
            440             445             450

gag cct gca ccc acc act acc aag tct gca ccc acc act ccc aag gag      1509
Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr Thr Pro Lys Glu
            455             460             465

cct tca ccc acc acc acc aag gag cct gca ccc acc act ccc aag gag      1557
Pro Ser Pro Thr Thr Thr Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu
            470             475             480

cct gca ccc acc acc ccc aag aag cct gcc cca act acc ccc aag gag      1605
Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu
            485             490             495

cct gca ccc acc act ccc aag gaa cct gca ccc acc acc acc aag aag      1653
Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Lys
500             505             510             515

cct gca ccc acc act ccc aaa gag cct gcc cca act acc ccc aag gag      1701
Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu
            520             525             530

act gca ccc acc acc ccc aag aag ctc acg ccc acc acc ccc gag aag      1749
Thr Ala Pro Thr Thr Pro Lys Lys Leu Thr Pro Thr Thr Pro Glu Lys
            535             540             545

ctc gca ccc acc acc cct gag aag ccc gca ccc acc acc cct gag gag      1797
Leu Ala Pro Thr Thr Pro Glu Lys Pro Ala Pro Thr Thr Pro Glu Glu
        550             555             560
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ctc gca ccc acc acc cct gag gag ccc aca ccc acc acc cct gag gag        1845
Leu Ala Pro Thr Thr Pro Glu Glu Pro Thr Pro Thr Thr Pro Glu Glu
    565             570             575

cct gct ccc acc act ccc aag gca gcg gct ccc aac acc cct aag gag        1893
Pro Ala Pro Thr Thr Pro Lys Ala Ala Ala Pro Asn Thr Pro Lys Glu
    580             585             590             595

cct gct cca act acc cct aag gag cct gct cca act acc cct aag gag        1941
Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu
                600             605             610

cct gct cca act acc cct aag gag act gct cca act acc cct aaa ggg        1989
Pro Ala Pro Thr Thr Pro Lys Glu Thr Ala Pro Thr Thr Pro Lys Gly
            615             620             625

act gct cca act acc ctc aag gaa cct gca ccc act act ccc aag aag        2037
Thr Ala Pro Thr Thr Leu Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys
        630             635             640

cct gcc ccc aag gag ctt gca ccc acc acc acc aag gag ccc aca tcc        2085
Pro Ala Pro Lys Glu Leu Ala Pro Thr Thr Thr Lys Glu Pro Thr Ser
    645             650             655

acc acc tgt gac aag ccc gct cca act acc cct aag ggg act gct cca        2133
Thr Thr Cys Asp Lys Pro Ala Pro Thr Thr Pro Lys Gly Thr Ala Pro
660             665             670             675

act acc cct aag gag cct gct cca act acc cct aag gag cct gct cca        2181
Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro
                680             685             690

act acc cct aag ggg act gct cca act acc ctc aag gaa cct gca ccc        2229
Thr Thr Pro Lys Gly Thr Ala Pro Thr Thr Leu Lys Glu Pro Ala Pro
            695             700             705

act act ccc aag aag cct gcc ccc aag gag ctt gca ccc acc acc acc        2277
Thr Thr Pro Lys Lys Pro Ala Pro Lys Glu Leu Ala Pro Thr Thr Thr
        710             715             720

aag ggg ccc aca tcc acc acc tct gac aag cct gct cca act aca cct        2325
Lys Gly Pro Thr Ser Thr Thr Ser Asp Lys Pro Ala Pro Thr Thr Pro
    725             730             735

aag gag act gct cca act acc ccc aag gag cct gca ccc act acc ccc        2373
Lys Glu Thr Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro
740             745             750             755

aag aag cct gct cca act act cct gag aca cct cct cca acc act tca        2421
Lys Lys Pro Ala Pro Thr Thr Pro Glu Thr Pro Pro Pro Thr Thr Ser
                760             765             770

gag gtc tct act cca act acc acc aag gag cct acc act atc cac aaa        2469
Glu Val Ser Thr Pro Thr Thr Thr Lys Glu Pro Thr Thr Ile His Lys
            775             780             785

agc cct gat gaa tca act cct gag ctt tct gca gaa ccc aca cca aaa        2517
Ser Pro Asp Glu Ser Thr Pro Glu Leu Ser Ala Glu Pro Thr Pro Lys
        790             795             800

gct ctt gaa aac agt ccc aag gaa cct ggt gta cct aca act aag act        2565
Ala Leu Glu Asn Ser Pro Lys Glu Pro Gly Val Pro Thr Thr Lys Thr
    805             810             815
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cct gca gcg act aaa cct gaa atg act aca aca gct aaa gac aag aca      2613
Pro Ala Ala Thr Lys Pro Glu Met Thr Thr Thr Ala Lys Asp Lys Thr
820             825                 830                 835

aca gaa aga gac tta cgt act aca cct gaa act aca act gct gca cct      2661
Thr Glu Arg Asp Leu Arg Thr Thr Pro Glu Thr Thr Thr Ala Ala Pro
                840                 845                 850

aag atg aca aaa gag aca gca act aca aca gaa aaa act acc gaa tcc      2709
Lys Met Thr Lys Glu Thr Ala Thr Thr Thr Glu Lys Thr Thr Glu Ser
            855                 860                 865

aaa ata aca gct aca acc aca caa gta aca tct acc aca act caa gat      2757
Lys Ile Thr Ala Thr Thr Thr Gln Val Thr Ser Thr Thr Thr Gln Asp
        870                 875                 880

acc aca cca ttc aaa att act act ctt aaa aca act act ctt gca ccc      2805
Thr Thr Pro Phe Lys Ile Thr Thr Leu Lys Thr Thr Thr Leu Ala Pro
    885                 890                 895

aaa gta act aca aca aaa aag aca att act acc act gag att atg aac      2853
Lys Val Thr Thr Thr Lys Lys Thr Ile Thr Thr Thr Glu Ile Met Asn
900             905                 910                 915

aaa cct gaa gaa aca gct aaa cca aaa gac aga gct act aat tct aaa      2901
Lys Pro Glu Glu Thr Ala Lys Pro Lys Asp Arg Ala Thr Asn Ser Lys
                920                 925                 930

gcg aca act cct aaa cct caa aag cca acc aaa gca ccc aaa aaa ccc      2949
Ala Thr Thr Pro Lys Pro Gln Lys Pro Thr Lys Ala Pro Lys Lys Pro
            935                 940                 945

act tct acc aaa aag cca aaa aca atg cct aga gtg aga aaa cca aag      2997
Thr Ser Thr Lys Lys Pro Lys Thr Met Pro Arg Val Arg Lys Pro Lys
        950                 955                 960

acg aca cca act ccc cgc aag atg aca tca aca atg cca gaa ttg aac      3045
Thr Thr Pro Thr Pro Arg Lys Met Thr Ser Thr Met Pro Glu Leu Asn
    965                 970                 975

cct acc tca aga ata gca gaa gcc atg ctc caa acc acc acc aga cct      3093
Pro Thr Ser Arg Ile Ala Glu Ala Met Leu Gln Thr Thr Thr Arg Pro
980             985                 990                 995

aac caa act cca aac  tcc aaa cta gtt gaa  gta aat cca aag agt       3138
Asn Gln Thr Pro Asn  Ser Lys Leu Val Glu  Val Asn Pro Lys Ser
                1000            1005                 1010

gaa gat gca ggt ggt  gct gaa gga gaa aca  cct cat atg ctt ctc       3183
Glu Asp Ala Gly Gly  Ala Glu Gly Glu Thr  Pro His Met Leu Leu
            1015                 1020                 1025

agg ccc cat gtg ttc  atg cct gaa gtt act  ccc gac atg gat tac       3228
Arg Pro His Val Phe  Met Pro Glu Val Thr  Pro Asp Met Asp Tyr
            1030                 1035                 1040

tta ccg aga gta ccc  aat caa ggc att atc  atc aat ccc atg ctt       3273
Leu Pro Arg Val Pro  Asn Gln Gly Ile Ile  Ile Asn Pro Met Leu
            1045                 1050                 1055

tcc gat gag acc aat  ata tgc aat ggt aag  cca gta gat gga ctg       3318
Ser Asp Glu Thr Asn  Ile Cys Asn Gly Lys  Pro Val Asp Gly Leu
            1060                 1065                 1070
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act act ttg cgc aat   ggg aca tta gtt gca   ttc cga ggt cat tat        3363
Thr Thr Leu Arg Asn   Gly Thr Leu Val Ala   Phe Arg Gly His Tyr
            1075                 1080                       1085

ttc tgg atg cta agt   cca ttc agt cca cca   tct cca gct cgc aga        3408
Phe Trp Met Leu Ser   Pro Phe Ser Pro Pro   Ser Pro Ala Arg Arg
            1090                 1095                       1100

att act gaa gtt tgg   ggt att cct tcc ccc   att gat act gtt ttt        3453
Ile Thr Glu Val Trp   Gly Ile Pro Ser Pro   Ile Asp Thr Val Phe
            1105                 1110                       1115

act agg tgc aac tgt   gaa gga aaa act ttc   ttc ttt aag gat tct        3498
Thr Arg Cys Asn Cys   Glu Gly Lys Thr Phe   Phe Phe Lys Asp Ser
            1120                 1125                       1130

cag tac tgg cgt ttt   acc aat gat ata aaa   gat gca ggg tac ccc        3543
Gln Tyr Trp Arg Phe   Thr Asn Asp Ile Lys   Asp Ala Gly Tyr Pro
            1135                 1140                       1145

aaa cca att ttc aaa   gga ttt gga gga cta   act gga caa ata gtg        3588
Lys Pro Ile Phe Lys   Gly Phe Gly Gly Leu   Thr Gly Gln Ile Val
            1150                 1155                       1160

gca gcg ctt tca aca   gct aaa tat aag aac   tgg cct gaa tct gtg        3633
Ala Ala Leu Ser Thr   Ala Lys Tyr Lys Asn   Trp Pro Glu Ser Val
            1165                 1170                       1175

tat ttt ttc aag aga   ggt ggc agc att cag   cag tat att tat aaa        3678
Tyr Phe Phe Lys Arg   Gly Gly Ser Ile Gln   Gln Tyr Ile Tyr Lys
            1180                 1185                       1190

cag gaa cct gta cag   aag tgc cct gga aga   agg cct gct cta aat        3723
Gln Glu Pro Val Gln   Lys Cys Pro Gly Arg   Arg Pro Ala Leu Asn
            1195                 1200                       1205

tat cca gtg tat gga   gaa acg aca cag gtt   agg aga cgt cgc ttt        3768
Tyr Pro Val Tyr Gly   Glu Thr Thr Gln Val   Arg Arg Arg Arg Phe
            1210                 1215                       1220

gaa cgt gct ata gga   cct tct caa aca cac   acc atc aga att caa        3813
Glu Arg Ala Ile Gly   Pro Ser Gln Thr His   Thr Ile Arg Ile Gln
            1225                 1230                       1235

tat tca cct gcc aga   ctg gct tat caa gac   aaa ggt gtc ctt cat        3858
Tyr Ser Pro Ala Arg   Leu Ala Tyr Gln Asp   Lys Gly Val Leu His
            1240                 1245                       1250

aat gaa gtt aaa gtg   agt ata ctg tgg aga   gga ctt cca aat gtg        3903
Asn Glu Val Lys Val   Ser Ile Leu Trp Arg   Gly Leu Pro Asn Val
            1255                 1260                       1265

gtt acc tca gct ata   tca ctg ccc aac atc   aga aaa cct gac ggc        3948
Val Thr Ser Ala Ile   Ser Leu Pro Asn Ile   Arg Lys Pro Asp Gly
            1270                 1275                       1280

tat gat tac tat gcc   ttt tct aaa gat caa   tac tat aac att gat        3993
Tyr Asp Tyr Tyr Ala   Phe Ser Lys Asp Gln   Tyr Tyr Asn Ile Asp
            1285                 1290                       1295

gtg cct agt aga aca   gca aga gca att act   act cgt tct ggg cag        4038
Val Pro Ser Arg Thr   Ala Arg Ala Ile Thr   Thr Arg Ser Gly Gln
            1300                 1305                       1310
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acc tta tcc aaa gtc   tgg tac aac tgt cct   tagactgatg agcaaaggag   4088
Thr Leu Ser Lys Val   Trp Tyr Asn Cys Pro
                1315   1320

gagtcaacta atgaagaaat gaataataaa ttttgacact gaaaaacatt ttattaataa   4148

agaatattga catgagtata ccagtttata tataaaaatg tttttaaact tgacaatcat   4208

tacactaaaa cagatttgat aatcttattc acagttgtta ttgtttacag accatttaat   4268

taatatttcc tctgtttatt cctcctctcc ctcccattgc atggctcaca cctgtaaaag   4328

aaaaaagaat caaattgaat atatctttta agaattcaaa actagtgtat tcacttaccc   4388

tagttcatta taaaaaatat ctaggcattg tggatataaa actgttgggt attctacaac   4448

ttcaatggaa attattacaa gcagattaat ccctcttttt gtgacacaag tacaatctaa   4508

aagttatatt ggaaaacatg gaaatattaa aattttacac ttttactagc taaaacataa   4568

tcacaaagct ttatcgtgtt gtataaaaaa attaacaata taatggcaat aggtagagat   4628

acaacaaatg aatataacac tataacactt catattttcc aaatcttaat ttggatttaa   4688

ggaagaaatc aataaatata aaatataagc acatatttat tatatatcta aggtatacaa   4748

atctgtctac atgaagttta cagattggta aatatcacct gctcaacatg taattatttta   4808

ataaaacttt ggaacattaa aaaaataaat tggaggctt   4847

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<212>   PRT
<213>   Homo sapiens

<400>   58

Met Ala Trp Lys Thr Leu Pro Ile Tyr Leu Leu Leu Leu Ser Val
1   5   10   15

Phe Val Ile Gln Gln Val Ser Ser Gln Glu Leu Ser Cys Lys Gly Arg
            20   25   30

Cys Phe Glu Ser Phe Glu Arg Gly Arg Glu Cys Asp Cys Asp Ala Gln
        35   40   45

Cys Lys Lys Tyr Asp Lys Cys Cys Pro Asp Tyr Glu Ser Phe Cys Ala
    50   55   60

Glu Val His Asn Pro Thr Ser Pro Ser Ser Lys Lys Ala Pro Pro
65   70   75   80

Pro Ser Gly Ala Ser Gln Thr Ile Lys Ser Thr Thr Lys Arg Ser Pro
                85   90   95

Lys Pro Pro Asn Lys Lys Lys Thr Lys Lys Val Ile Glu Ser Glu Glu

Ile Thr Glu Val Lys Asp Asn Lys Lys Asn Arg Thr Lys Lys Lys Pro
        115   120   125

Thr Pro Lys Pro Pro Val Val Asp Glu Ala Gly Ser Gly Leu Asp Asn
    130   135   140

Gly Asp Phe Lys Val Thr Thr Pro Asp Thr Ser Thr Thr Gln His Asn
145   150   155   160

Lys Val Ser Thr Ser Pro Lys Ile Thr Thr Ala Lys Pro Ile Asn Pro
                165   170   175

Arg Pro Ser Leu Pro Pro Asn Ser Asp Thr Ser Lys Glu Thr Ser Leu
            180   185   190

Thr Val Asn Lys Glu Thr Thr Val Glu Thr Lys Glu Thr Thr Thr Thr
        195   200   205

Asn Lys Gln Thr Ser Thr Asp Gly Lys Glu Lys Thr Thr Ser Ala Lys
    210   215   220

Glu Thr Gln Ser Ile Glu Lys Thr Ser Ala Lys Asp Leu Ala Pro Thr
225   230   235   240

Ser Lys Val Leu Ala Lys Pro Thr Pro Lys Ala Glu Thr Thr Thr Lys
            245   250   255

Gly Pro Ala Leu Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Pro Lys
            260   265   270

Glu Pro Ala Ser Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Ile Lys
    275   280   285

Ser Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser
    290   295   300

Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro
305   310   315   320

Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro
                325   330   335

Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr Thr Pro Lys Glu Pro Ala
            340   345   350

Pro Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala

Pro Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Pro Lys Glu Pro Ala
    370   375   380

Pro Thr Thr Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro
385   390   395   400

Thr Ala Pro Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro
                405   410   415

Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Glu Pro Ser Pro
                420   425   430

Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr
                435   440   445

Thr Thr Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr Thr
    450   455   460

Pro Lys Glu Pro Ser Pro Thr Thr Thr Lys Glu Pro Ala Pro Thr Thr
465   470   475   480

Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr
                485   490   495

Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
                500   505   510

Thr Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
    515   520   525

Pro Lys Glu Thr Ala Pro Thr Thr Pro Lys Lys Leu Thr Pro Thr Thr
    530   535   540

Pro Glu Lys Leu Ala Pro Thr Thr Pro Glu Lys Pro Ala Pro Thr Thr
545   550   555   560

Pro Glu Glu Leu Ala Pro Thr Thr Pro Glu Glu Pro Thr Pro Thr Thr
                565   570   575

Pro Glu Glu Pro Ala Pro Thr Thr Pro Lys Ala Ala Ala Pro Asn Thr
                580   585   590

Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
    595   600   605

Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Thr Ala Pro Thr Thr

Pro Lys Gly Thr Ala Pro Thr Thr Leu Lys Glu Pro Ala Pro Thr Thr
625   630   635   640

Pro Lys Lys Pro Ala Pro Lys Glu Leu Ala Pro Thr Thr Thr Lys Glu
                 645   650   655

Pro Thr Ser Thr Thr Cys Asp Lys Pro Ala Pro Thr Thr Pro Lys Gly
             660   665   670

Thr Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu
         675   680   685

Pro Ala Pro Thr Thr Pro Lys Gly Thr Ala Pro Thr Thr Leu Lys Glu
     690   695   700

Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Lys Glu Leu Ala Pro
705   710   715   720

Thr Thr Thr Lys Gly Pro Thr Ser Thr Thr Ser Asp Lys Pro Ala Pro
             725   730   735

Thr Thr Pro Lys Glu Thr Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro
         740   745   750

Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr Pro Glu Thr Pro Pro Pro
         755   760   765

Thr Thr Ser Glu Val Ser Thr Pro Thr Thr Thr Lys Glu Pro Thr Thr
     770   775   780

Ile His Lys Ser Pro Asp Glu Ser Thr Pro Glu Leu Ser Ala Glu Pro
785   790   795   800

Thr Pro Lys Ala Leu Glu Asn Ser Pro Lys Glu Pro Gly Val Pro Thr
             805   810   815

Thr Lys Thr Pro Ala Ala Thr Lys Pro Glu Met Thr Thr Thr Ala Lys
             820   825   830

Asp Lys Thr Thr Glu Arg Asp Leu Arg Thr Thr Pro Glu Thr Thr Thr
         835   840   845

Ala Ala Pro Lys Met Thr Lys Glu Thr Ala Thr Thr Glu Lys Thr
     850   855   860

Thr Glu Ser Lys Ile Thr Ala Thr Thr Thr Gln Val Thr Ser Thr Thr

Thr Gln Asp Thr Thr Pro Phe Lys Ile Thr Thr Leu Lys Thr Thr Thr
            885   890   895

Leu Ala Pro Lys Val Thr Thr Thr Lys Lys Thr Ile Thr Thr Thr Glu
            900   905   910

Ile Met Asn Lys Pro Glu Glu Thr Ala Lys Pro Lys Asp Arg Ala Thr
            915   920   925

Asn Ser Lys Ala Thr Thr Pro Lys Pro Gln Lys Pro Thr Lys Ala Pro
    930   935   940

Lys Lys Pro Thr Ser Thr Lys Lys Pro Lys Thr Met Pro Arg Val Arg
945   950   955   960

Lys Pro Lys Thr Thr Pro Thr Pro Arg Lys Met Thr Ser Thr Met Pro
            965   970   975

Glu Leu Asn Pro Thr Ser Arg Ile Ala Glu Ala Met Leu Gln Thr Thr
            980   985   990

Thr Arg Pro Asn Gln Thr Pro Asn Ser Lys Leu Val Glu Val Asn Pro
            995   1000   1005

Lys Ser Glu Asp Ala Gly Gly Ala Glu Gly Glu Thr Pro His Met
    1010   1015   1020

Leu Leu Arg Pro His Val Phe Met Pro Glu Val Thr Pro Asp Met
    1025   1030   1035

Asp Tyr Leu Pro Arg Val Pro Asn Gln Gly Ile Ile Ile Asn Pro
    1040   1045   1050

Met Leu Ser Asp Glu Thr Asn Ile Cys Asn Gly Lys Pro Val Asp
    1055   1060   1065

Gly Leu Thr Thr Leu Arg Asn Gly Thr Leu Val Ala Phe Arg Gly
    1070   1075   1080

His Tyr Phe Trp Met Leu Ser Pro Phe Ser Pro Ser Pro Ala
    1085   1090   1095

Arg Arg Ile Thr Glu Val Trp Gly Ile Pro Ser Pro Ile Asp Thr
    1100   1105   1110

Val Phe Thr Arg Cys Asn Cys Glu Gly Lys Thr Phe Phe Phe Lys

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        1115                    1120                    1125


    Asp Ser  Gln Tyr Trp Arg Phe  Thr Asn Asp Ile Lys  Asp Ala Gly
        1130                    1135                    1140


    Tyr Pro  Lys Pro Ile Phe Lys  Gly Phe Gly Gly Leu  Thr Gly Gln
        1145                    1150                    1155


    Ile Val  Ala Ala Leu Ser Thr  Ala Lys Tyr Lys Asn  Trp Pro Glu
        1160                    1165                    1170


    Ser Val  Tyr Phe Phe Lys Arg  Gly Gly Ser Ile Gln  Gln Tyr Ile
        1175                    1180                    1185


    Tyr Lys  Gln Glu Pro Val Gln  Lys Cys Pro Gly Arg  Arg Pro Ala
        1190                    1195                    1200


    Leu Asn  Tyr Pro Val Tyr Gly  Glu Thr Thr Gln Val  Arg Arg Arg
        1205                    1210                    1215


    Arg Phe  Glu Arg Ala Ile Gly  Pro Ser Gln Thr His  Thr Ile Arg
        1220                    1225                    1230


    Ile Gln  Tyr Ser Pro Ala Arg  Leu Ala Tyr Gln Asp  Lys Gly Val
        1235                    1240                    1245


    Leu His  Asn Glu Val Lys Val  Ser Ile Leu Trp Arg  Gly Leu Pro
        1250                    1255                    1260


    Asn Val  Val Thr Ser Ala Ile  Ser Leu Pro Asn Ile  Arg Lys Pro
        1265                    1270                    1275


    Asp Gly  Tyr Asp Tyr Tyr Ala  Phe Ser Lys Asp Gln  Tyr Tyr Asn
        1280                    1285                    1290


    Ile Asp  Val Pro Ser Arg Thr  Ala Arg Ala Ile Thr  Thr Arg Ser
        1295                    1300                    1305


    Gly Gln  Thr Leu Ser Lys Val  Trp Tyr Asn Cys Pro
        1310                    1315                    1320


    <210>  59
    <211>  258
    <212>  PRT
    <213>  Homo sapiens

    <400>  59

    Met Glu Val Lys Pro Pro Pro Gly Arg Pro Gln Pro Asp Ser Gly Arg
    1                   5                   10                  15
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Arg Arg Arg Arg Arg Gly Glu Glu Gly His Asp Pro Lys Glu Pro Glu
            20   25   30

Gln Leu Arg Lys Leu Phe Ile Gly Gly Leu Ser Phe Glu Thr Thr Asp
        35   40   45

Asp Ser Leu Arg Glu His Phe Glu Lys Trp Gly Thr Leu Thr Asp Cys
    50   55   60

Val Val Met Arg Asp Pro Gln Thr Lys Arg Ser Arg Gly Phe Gly Phe
65   70   75   80

Val Thr Tyr Ser Cys Val Glu Glu Val Asp Ala Ala Met Cys Ala Arg
                85   90   95

Pro His Lys Val Asp Gly Arg Val Val Glu Pro Lys Arg Ala Val Ser
            100   105   110

Arg Glu Asp Ser Val Lys Pro Gly Ala His Leu Thr Val Lys Lys Ile
        115   120   125

Phe Val Gly Gly Ile Lys Glu Asp Thr Glu Glu Tyr Asn Leu Arg Asp
    130   135   140

Tyr Phe Glu Lys Tyr Gly Lys Ile Glu Thr Ile Glu Val Met Glu Asp
145   150   155   160

Arg Gln Ser Gly Lys Lys Arg Gly Phe Ala Phe Val Thr Phe Asp Asp
            165   170   175

His Asp Thr Val Asp Lys Ile Val Val Gln Lys Tyr His Thr Ile Asn
        180   185   190

Gly His Asn Cys Glu Val Lys Lys Ala Leu Ser Lys Gln Glu Met Gln
        195   200   205

Ser Ala Gly Ser Gln Arg Gly Arg Gly Gly Gly Ser Gly Asn Phe Met
    210   215   220

Gly Arg Gly Gly Asn Phe Gly Gly Gly Gly Asn Phe Gly Arg Gly
225   230   235   240

Gly Asn Phe Gly Gly Arg Gly Arg Leu Trp Trp Arg Trp Trp Gln
            245   250   255

Gln Arg

Met Thr Ala Gly Ile Asn Ala Asp Gly His Leu Ile Asn Thr Gly Gln
1   5   10   15

Ala Met Asp Ser Ser Asp Asn Ser Glu Arg Thr Gly Glu Arg Val Ser
                20   25   30

Pro Asp Ile Asn Glu Thr Asn Thr Asp Thr Asp Leu Phe Val Pro Thr
            35   40   45

Ser Ser Ser Ser Gln Leu Pro Val Thr Ile Asp Ser Thr Gly Ile Leu
        50   55   60

Gln Gln Asn Thr Asn Ser Leu Thr Thr Ser Ser Gly Gln Val His Ser
65   70   75   80

Ser Asp Leu Gln Gly Asn Tyr Ile Gln Ser Pro Val Ser Glu Glu Thr
                85   90   95

Gln Ala Gln Asn Ile Gln Val Ser Thr Ala Gln Pro Val Val Gln His
            100   105   110

Leu Gln Leu Gln Glu Ser Gln Gln Pro Thr Ser Gln Ala Gln Ile Val
        115   120   125

Gln Gly Ile Thr Pro Gln Thr Ile His Gly Val Gln Ala Ser Gly Gln
        130   135   140

Asn Ile Ser Gln Gln Ala Leu Gln Asn Leu Gln Leu Gln Leu Asn Pro
145   150   155   160

Gly Thr Phe Leu Ile Gln Ala Gln Thr Val Thr Pro Ser Gly Gln Val
                165   170   175

Thr Trp Gln Thr Phe Gln Val Gln Gly Val Gln Asn Leu Gln Asn Leu
                180   185   190

Gln Ile Gln Asn Thr Ala Ala Gln Gln Ile Thr Leu Thr Pro Val Gln
        195   200   205

Thr Leu Thr Leu Gly Gln Val Ala Ala Gly Gly Ala Phe Thr Ser Thr
        210   215   220

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Pro Val Ser Leu Ser Thr Gly Gln Leu Pro Asn Leu Gln Thr Val Thr
225             230             235             240

Val Asn Ser Ile Asp Ser Ala Gly Ile Gln Leu His Pro Gly Glu Asn
            245             250             255

Ala Asp Ser Pro Ala Asp Ile Arg Ile Lys Glu Glu Glu Pro Asp Pro
            260             265             270

Glu Glu Trp Gln Leu Ser Gly Asp Ser Thr Leu Asn Thr Asn Asp Leu
            275             280             285

Thr His Leu Arg Val Gln Val Val Asp Glu Glu Gly Asp Gln Gln His
    290             295             300

Gln Glu Gly Lys Arg Leu Arg Arg Val Ala Cys Thr Cys Pro Asn Cys
305             310             315             320

Lys Glu Gly Gly Gly Arg Gly Thr Asn Leu Gly Lys Lys Lys Gln His
            325             330             335

Ile Cys His Ile Pro Gly Cys Gly Lys Val Tyr Gly Lys Thr Ser His
            340             345             350

Leu Arg Ala His Leu Arg Trp His Ser Gly Glu Arg Pro Phe Val Cys
    355             360             365

Asn Trp Met Tyr Cys Gly Lys Arg Phe Thr Arg Ser Asp Glu Leu Gln
    370             375             380

Arg His Arg Arg Thr His Thr Gly Glu Lys Lys Phe Val Cys Pro Glu
385             390             395             400

Cys Ser Lys Arg Phe Met Arg Ser Asp His Leu Ala Lys His Ile Lys
            405             410             415

Thr His Gln Asn Lys Lys Gly Ile His Ser Ser Ser Thr Val Leu Ala
            420             425             430

Ser Val Glu Ala Ala Arg Asp Asp Thr Leu Ile Thr Ala Gly Gly Thr
    435             440             445

Thr Leu Ile Leu Ala Lys Ile Gln Gln Gly Ser Val Ser Gly Ile Gly
    450             455             460

Thr Val Asn Thr Ser Ala Thr Ser Asn Gln Asp Ile Leu Thr Asn Thr
465             470             475             480
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Glu Ile Pro Leu Gln Leu Val Thr Val Ser Gly Asn Glu Thr Met Glu
                485   490   495

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<211> 315
<212> PRT
<213> Homo sapiens

<400> 61

Met Asp Leu Arg Gln Phe Leu Met Cys Leu Ser Leu Cys Thr Ala Phe
1   5   10   15

Ala Leu Ser Lys Pro Thr Glu Lys Lys Asp Arg Val His His Glu Pro
            20   25   30

Gln Leu Ser Asp Lys Val His Asn Asp Ala Gln Ser Phe Asp Tyr Asp
        35   40   45

His Asp Ala Phe Leu Gly Ala Glu Glu Ala Lys Thr Phe Asp Gln Leu
    50   55   60

Thr Pro Glu Glu Ser Lys Glu Arg Leu Gly Lys Ile Val Ser Lys Ile
65   70   75   80

Asp Gly Asp Lys Asp Gly Phe Val Thr Val Asp Glu Leu Lys Asp Trp
            85   90   95

Ile Lys Phe Ala Gln Lys Arg Trp Ile Tyr Glu Asp Val Glu Arg Gln
            100   105   110

Trp Lys Gly His Asp Leu Asn Glu Asp Gly Leu Val Ser Trp Glu Glu
        115   120   125

Tyr Lys Asn Ala Thr Tyr Gly Tyr Val Leu Asp Asp Pro Asp Pro Asp
    130   135   140

Asp Gly Phe Asn Tyr Lys Gln Met Met Val Arg Asp Glu Arg Arg Phe
145   150   155   160

Lys Met Ala Asp Lys Asp Gly Asp Leu Ile Ala Thr Lys Glu Glu Phe
            165   170   175

Thr Ala Phe Leu His Pro Glu Glu Tyr Asp Tyr Met Lys Asp Ile Val
        180   185   190

Val Gln Glu Thr Met Glu Asp Ile Asp Lys Asn Ala Asp Gly Phe Ile
        195   200   205

Asp Leu Glu Glu Tyr Ile Gly Asp Met Tyr Ser His Asp Gly Asn Thr
    210   215   220

Asp Glu Pro Glu Trp Val Lys Thr Glu Arg Glu Gln Phe Val Glu Phe
225   230   235   240

Arg Asp Lys Asn Arg Asp Gly Lys Met Asp Lys Glu Glu Thr Lys Asp
                245   250   255

Trp Ile Leu Pro Ser Asp Tyr Asp His Ala Glu Ala Glu Ala Arg His
            260   265   270

Leu Val Tyr Glu Ser Asp Gln Asn Lys Asp Gly Lys Leu Thr Lys Glu
            275   280   285

Glu Ile Val Asp Lys Tyr Asp Leu Phe Val Gly Ser Gln Ala Thr Asp
    290   295   300

Phe Gly Glu Ala Leu Val Arg His Asp Glu Phe
305   310   315

<210>   62
<211>   336
<212>   PRT
<213>   Homo sapiens

<400>   62

Met Arg Ala Pro Ser Met Asp Arg Ala Ala Val Ala Arg Val Gly Ala
1   5   10   15

Val Ala Ser Ala Ser Val Cys Ala Leu Val Ala Gly Val Val Leu Ala
            20   25   30

Gln Tyr Ile Phe Thr Leu Lys Arg Lys Thr Gly Arg Lys Thr Lys Ile
            35   40   45

Ile Glu Met Met Pro Glu Phe Gln Lys Ser Ser Val Arg Ile Lys Asn
    50   55   60

Pro Thr Arg Val Glu Glu Ile Ile Cys Gly Leu Ile Lys Gly Gly Ala
65   70   75   80

Ala Lys Leu Gln Ile Ile Thr Asp Phe Asp Met Thr Leu Ser Arg Phe
                85   90   95

Ser Tyr Lys Gly Lys Arg Cys Pro Thr Cys His Asn Ile Ile Asp Asn
            100   105   110

Cys Lys Leu Val Thr Asp Glu Cys Arg Lys Lys Leu Leu Gln Leu Lys

```
              115                    120                    125

    Glu Lys Tyr Tyr Ala Ile Glu Val Asp Pro Val Leu Thr Val Glu Glu
        130                    135                    140


    Lys Tyr Pro Tyr Met Val Glu Trp Tyr Thr Lys Ser His Gly Leu Leu
    145                    150                    155                    160


    Val Gln Gln Ala Leu Pro Lys Ala Lys Leu Lys Glu Ile Val Ala Glu
                        165                    170                    175


    Ser Asp Val Met Leu Lys Glu Gly Tyr Glu Asn Phe Phe Asp Lys Leu
                        180                    185                    190


    Gln Gln His Ser Ile Pro Val Phe Ile Phe Ser Ala Gly Ile Gly Asp
                195                    200                    205


    Val Leu Glu Glu Val Ile Arg Gln Ala Gly Val Tyr His Pro Asn Val
        210                    215                    220


    Lys Val Val Ser Asn Phe Met Asp Phe Asp Glu Thr Gly Val Leu Lys
    225                    230                    235                    240


    Gly Phe Lys Gly Glu Leu Ile His Val Phe Asn Lys His Asp Gly Ala
                        245                    250                    255


    Leu Arg Asn Thr Glu Tyr Phe Asn Gln Leu Lys Asp Asn Ser Asn Ile
                        260                    265                    270


    Ile Leu Leu Gly Asp Ser Gln Gly Asp Leu Arg Met Ala Asp Gly Val
                        275                    280                    285


    Ala Asn Val Glu His Ile Leu Lys Ile Gly Tyr Leu Asn Asp Arg Val
        290                    295                    300


    Asp Glu Leu Leu Glu Lys Tyr Met Asp Ser Tyr Asp Ile Val Leu Val
    305                    310                    315                    320


    Gln Asp Glu Ser Leu Glu Val Ala Asn Ser Ile Leu Gln Lys Ile Leu
                        325                    330                    335


    <210>    63
    <211>    472
    <212>    PRT
    <213>    Homo sapiens

    <400>    63

    Met Ala Leu Gly Leu Glu Gln Ala Glu Glu Gln Arg Leu Tyr Gln Gln
    1                    5                    10                    15
```

Thr Leu Leu Gln Asp Gly Leu Lys Asp Met Leu Asp His Gly Lys Phe
                20   25   30

Leu Asp Cys Val Val Arg Ala Gly Glu Arg Glu Phe Pro Cys His Arg
        35   40   45

Leu Val Leu Ala Ala Cys Ser Pro Tyr Phe Arg Ala Arg Phe Leu Ala
    50   55   60

Glu Pro Glu Arg Ala Gly Glu Leu His Leu Glu Glu Val Ser Pro Asp
65   70   75   80

Val Val Ala Gln Val Leu His Tyr Leu Tyr Thr Ser Glu Ile Ala Leu
                85   90   95

Asp Glu Ala Ser Val Gln Asp Leu Phe Ala Ala Ala His Arg Phe Gln
            100   105   110

Ile Pro Ser Ile Phe Thr Ile Cys Val Ser Phe Leu Gln Lys Arg Leu
        115   120   125

Cys Leu Ser Asn Cys Leu Ala Val Phe Arg Leu Gly Leu Leu Leu Asp
    130   135   140

Cys Ala Arg Leu Ala Val Ala Ala Arg Asp Phe Ile Cys Ala His Phe
145   150   155   160

Thr Leu Val Ala Arg Asp Ala Asp Phe Leu Gly Leu Ser Ala Asp Glu
                165   170   175

Leu Ile Ala Ile Ile Ser Ser Asp Gly Leu Asn Val Glu Lys Glu Glu
            180   185   190

Ala Val Phe Glu Ala Val Met Arg Trp Ala Gly Ser Gly Asp Ala Glu
        195   200   205

Ala Gln Ala Glu Arg Gln Arg Ala Leu Pro Thr Val Phe Glu Ser Val
    210   215   220

Arg Cys Arg Leu Leu Pro Arg Ala Phe Leu Glu Ser Arg Val Glu Arg
225   230   235   240

His Pro Leu Val Arg Ala Gln Pro Glu Leu Leu Arg Lys Val Gln Met
            245   250   255

Val Lys Asp Ala His Glu Gly Arg Ile Thr Thr Leu Arg Lys Lys Lys
        260   265   270

```
Lys Gly Lys Asp Gly Ala Gly Ala Lys Glu Ala Asp Lys Gly Thr Ser
        275                 280                 285

Lys Ala Lys Ala Glu Glu Asp Glu Glu Ala Glu Arg Ile Leu Pro Gly
    290                 295                 300

Ile Leu Asn Asp Thr Leu Arg Phe Gly Met Phe Leu Gln Asp Leu Ile
305                 310                 315                 320

Phe Met Ile Ser Glu Glu Gly Ala Val Ala Tyr Asp Pro Ala Ala Asn
                325                 330                 335

Glu Cys Tyr Cys Ala Ser Leu Ser Asn Gln Val Pro Lys Asn His Val
            340                 345                 350

Ser Leu Val Thr Lys Glu Asn Gln Val Phe Val Ala Gly Gly Leu Phe
            355                 360                 365

Tyr Asn Glu Asp Asn Lys Glu Asp Pro Met Ser Ala Tyr Phe Leu Gln
    370                 375                 380

Phe Asp His Leu Asp Ser Glu Trp Leu Gly Met Pro Pro Leu Pro Ser
385                 390                 395                 400

Pro Arg Cys Leu Phe Gly Leu Gly Glu Ala Leu Asn Ser Ile Tyr Val
            405                 410                 415

Val Gly Gly Arg Glu Ile Lys Asp Gly Glu Arg Cys Leu Asp Ser Val
            420                 425                 430

Met Cys Tyr Asp Arg Leu Ser Phe Lys Trp Gly His Arg His Arg Ala
            435                 440                 445

Asp Gln Phe Cys Arg Ser Val Gln His His Arg Gln Gln Val Gly Thr
    450                 455                 460

Leu Arg Gly Leu Pro Thr Gly Ala
465                 470


<210>   64
<211>   377
<212>   PRT
<213>   Homo sapiens

<400>   64

Met Leu Ser Val Pro His Gly Ile Ala Asn Glu Asp Ile Val Ser Gln
1                   5                   10                  15
```

```
Asn Pro Gly Glu Leu Ser Cys Lys Arg Gly Asp Val Leu Val Met Leu
        20              25              30

Lys Gln Thr Glu Asn Asn Tyr Leu Glu Cys Gln Lys Gly Glu Asp Thr
        35              40              45

Gly Arg Val His Leu Ser Gln Met Lys Ile Ile Thr Pro Leu Asp Glu
    50              55              60

His Leu Arg Ser Arg Pro Asn Asp Pro Ser His Ala Gln Lys Pro Val
65              70              75              80

Asp Ser Gly Ala Pro His Ala Val Val Leu His Asp Phe Pro Ala Glu
            85              90              95

Gln Val Asp Asp Leu Asn Leu Thr Ser Gly Glu Ile Val Tyr Leu Leu
            100             105             110

Glu Lys Ile Asp Thr Asp Trp Tyr Arg Gly Asn Cys Arg Asn Gln Ile
        115             120             125

Gly Ile Phe Pro Ala Asn Tyr Val Lys Val Ile Ile Asp Ile Pro Glu
    130             135             140

Gly Gly Asn Gly Lys Arg Glu Cys Val Ser Ser His Cys Val Lys Gly
145             150             155             160

Ser Arg Cys Val Ala Arg Phe Glu Tyr Ile Gly Glu Gln Lys Asp Glu
            165             170             175

Leu Ser Phe Ser Glu Gly Glu Ile Ile Ile Leu Lys Glu Tyr Val Asn
            180             185             190

Glu Glu Trp Ala Arg Gly Glu Val Arg Gly Arg Thr Gly Ile Phe Pro
        195             200             205

Leu Asn Phe Val Glu Pro Val Glu Asp Tyr Pro Thr Ser Gly Ala Asn
    210             215             220

Val Leu Ser Thr Lys Val Pro Leu Lys Thr Lys Lys Glu Asp Ser Gly
225             230             235             240

Ser Asn Ser Gln Val Asn Ser Leu Pro Ala Glu Trp Cys Glu Ala Leu
            245             250             255

His Ser Phe Thr Ala Glu Thr Ser Asp Asp Leu Ser Phe Lys Arg Gly
        260             265             270
```

Asp Arg Ile Gln Ile Leu Glu Arg Leu Asp Ser Asp Trp Cys Arg Gly
        275   280   285

Arg Leu Gln Asp Arg Glu Gly Ile Phe Pro Ala Val Phe Val Arg Pro
        290   295   300

Cys Pro Ala Glu Ala Lys Ser Met Leu Ala Ile Val Pro Lys Gly Arg
305   310   315   320

Lys Ala Lys Ala Leu Tyr Asp Phe Arg Gly Glu Asn Glu Asp Glu Leu
                325   330   335

Ser Phe Lys Ala Gly Asp Ile Ile Thr Glu Leu Glu Ser Val Asp Asp
                340   345   350

Asp Trp Met Ser Gly Glu Leu Met Gly Lys Ser Gly Ile Phe Pro Lys
        355   360   365

Asn Tyr Ile Gln Phe Leu Gln Ile Ser
    370   375

<210> 65
<211> 949
<212> PRT
<213> Homo sapiens

<400> 65

Met Asp Ile Ser Thr Arg Ser Lys Asp Pro Gly Ser Ala Glu Arg Thr
1   5   10   15

Ala Gln Lys Arg Lys Phe Pro Ser Pro Pro His Ser Ser Asn Gly His
                20   25   30

Ser Pro Gln Asp Thr Ser Thr Ser Pro Ile Lys Lys Lys Lys Lys Pro
        35   40   45

Gly Leu Leu Asn Ser Asn Asn Lys Glu Gln Ser Glu Leu Arg His Gly
    50   55   60

Pro Phe Tyr Tyr Met Lys Gln Pro Leu Thr Thr Asp Pro Val Asp Val
65   70   75   80

Val Pro Gln Asp Gly Arg Asn Asp Phe Tyr Cys Trp Val Cys His Arg
                85   90   95

Glu Gly Gln Val Leu Cys Cys Glu Leu Cys Pro Arg Val Tyr His Ala
        100   105   110

```
Lys Cys Leu Arg Leu Thr Ser Glu Pro Glu Gly Asp Trp Phe Cys Pro
        115                 120                 125

Glu Cys Glu Lys Ile Thr Val Ala Glu Cys Ile Glu Thr Gln Ser Lys
    130                 135                 140

Ala Met Thr Met Leu Thr Ile Glu Gln Leu Ser Tyr Leu Leu Lys Phe
145                 150                 155                 160

Ala Ile Gln Lys Met Lys Gln Pro Gly Thr Asp Ala Phe Gln Lys Pro
                165                 170                 175

Val Pro Leu Glu Gln His Pro Asp Tyr Ala Glu Tyr Ile Phe His Pro
            180                 185                 190

Met Asp Leu Cys Thr Leu Glu Lys Asn Ala Lys Lys Lys Met Tyr Gly
        195                 200                 205

Cys Thr Glu Ala Phe Leu Ala Asp Ala Lys Trp Ile Leu His Asn Cys
    210                 215                 220

Ile Ile Tyr Asn Gly Gly Asn His Lys Leu Thr Gln Ile Ala Lys Val
225                 230                 235                 240

Val Ile Lys Ile Cys Glu His Glu Met Asn Glu Ile Glu Val Cys Pro
                245                 250                 255

Glu Cys Tyr Leu Ala Ala Cys Gln Lys Arg Asp Asn Trp Phe Cys Glu
            260                 265                 270

Pro Cys Ser Asn Pro His Pro Leu Val Trp Ala Lys Leu Lys Gly Phe
        275                 280                 285

Pro Phe Trp Pro Ala Lys Ala Leu Arg Asp Lys Asp Gly Gln Val Asp
    290                 295                 300

Ala Arg Phe Phe Gly Gln His Asp Arg Ala Trp Val Pro Ile Asn Asn
305                 310                 315                 320

Cys Tyr Leu Met Ser Lys Glu Ile Pro Phe Ser Val Lys Lys Thr Lys
                325                 330                 335

Ser Ile Phe Asn Ser Ala Met Gln Glu Met Glu Val Tyr Val Glu Asn
            340                 345                 350

Ile Arg Arg Lys Phe Gly Val Phe Asn Tyr Ser Pro Phe Arg Thr Pro
        355                 360                 365
```

Tyr Thr Pro Asn Ser Gln Tyr Gln Met Leu Leu Asp Pro Thr Asn Pro
    370   375   380

Ser Ala Gly Thr Ala Lys Ile Asp Lys Gln Glu Lys Val Lys Leu Asn
385   390   395   400

Phe Asp Met Thr Ala Ser Pro Lys Ile Leu Met Ser Lys Pro Val Leu
                405   410   415

Ser Gly Gly Thr Gly Arg Arg Ile Ser Leu Ser Asp Met Pro Arg Ser
                420   425   430

Pro Met Ser Thr Asn Ser Ser Val His Thr Gly Ser Asp Val Glu Gln
                435   440   445

Asp Ala Glu Lys Lys Ala Thr Ser Ser His Phe Ser Ala Ser Glu Glu
    450   455   460

Ser Met Asp Phe Leu Asp Lys Ser Thr Ala Ser Pro Ala Ser Thr Lys
465   470   475   480

Thr Gly Gln Ala Gly Ser Leu Ser Gly Ser Pro Lys Pro Phe Ser Pro
                485   490   495

Gln Leu Ser Ala Pro Ile Thr Thr Lys Thr Asp Lys Thr Ser Thr Thr
                500   505   510

Gly Ser Ile Leu Asn Leu Asn Leu Asp Arg Ser Lys Ala Glu Met Asp
                515   520   525

Leu Lys Glu Leu Ser Glu Ser Val Gln Gln Gln Ser Thr Pro Val Pro
    530   535   540

Leu Ile Ser Pro Lys Arg Gln Ile Arg Ser Arg Phe Gln Leu Asn Leu
545   550   555   560

Asp Lys Thr Ile Glu Ser Cys Lys Ala Gln Leu Gly Ile Asn Glu Ile
                565   570   575

Ser Glu Asp Val Tyr Thr Ala Val Glu His Ser Asp Ser Glu Asp Ser
                580   585   590

Glu Lys Ser Asp Ser Ser Asp Ser Glu Tyr Ile Ser Asp Asp Glu Gln
    595   600   605

Lys Ser Lys Asn Glu Pro Glu Asp Thr Glu Asp Lys Glu Gly Cys Gln
    610   615   620

Met Asp Lys Glu Pro Ser Ala Val Lys Lys Lys Pro Lys Pro Thr Asn
625   630   635   640

Pro Val Glu Ile Lys Glu Glu Leu Lys Ser Thr Ser Pro Ala Ser Glu
                    645   650   655

Lys Ala Asp Pro Gly Ala Val Lys Asp Lys Ala Ser Pro Glu Pro Glu
               660   665   670

Lys Asp Phe Ser Glu Lys Ala Lys Pro Ser Pro His Pro Ile Lys Asp
          675   680   685

Lys Leu Lys Gly Lys Asp Glu Thr Asp Ser Pro Thr Val His Leu Gly
     690   695   700

Leu Asp Ser Asp Ser Glu Ser Glu Leu Val Ile Asp Leu Gly Glu Asp
705   710   715   720

His Ser Gly Arg Glu Gly Arg Lys Asn Lys Lys Glu Pro Lys Glu Pro
               725   730   735

Ser Pro Lys Gln Asp Val Val Gly Lys Thr Pro Pro Ser Thr Thr Val
          740   745   750

Gly Ser His Ser Pro Pro Glu Thr Pro Val Leu Thr Arg Ser Ser Ala
          755   760   765

Gln Thr Ser Ala Ala Gly Ala Thr Ala Thr Ser Thr Ser Ser Thr
     770   775   780

Val Thr Val Thr Ala Pro Ala Pro Ala Ala Thr Gly Ser Pro Val Lys
785   790   795   800

Lys Gln Arg Pro Leu Leu Pro Lys Glu Thr Ala Pro Ala Val Gln Arg
               805   810   815

Val Val Trp Asn Ser Ser Ser Lys Phe Gln Thr Ser Ser Gln Lys Trp
               820   825   830

His Met Gln Lys Met Gln Arg Gln Gln Gln Gln Gln Gln Gln Asn
          835   840   845

Gln Gln Gln Gln Pro Gln Ser Ser Gln Gly Thr Arg Tyr Gln Thr Arg
     850   855   860

Gln Ala Val Lys Ala Val Gln Gln Lys Glu Ile Thr Gln Ser Pro Ser
865   870   875   880

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Thr Ser Thr Ile Thr Leu Val Thr Ser Thr Gln Ser Ser Pro Leu Val
              885               890               895


Thr Ser Ser Gly Ser Met Ser Thr Leu Val Ser Ser Val Asn Ala Asp
              900               905               910


Leu Pro Ile Ala Thr Ala Ser Ala Asp Val Ala Ala Asp Ile Ala Lys
         915               920               925


Tyr Thr Ser Lys Val Asn Gly Cys Asn Lys Arg Asn Asn Asp Arg Asn
         930               935               940


Ile Gln Arg Ser Phe
945


<210>   66
<211>   380
<212>   PRT
<213>   Homo sapiens

<400>   66

Met Asp Ser Gly Cys Trp Leu Phe Gly Gly Glu Phe Glu Asp Ser Val
1                 5                 10                15


Phe Glu Glu Arg Pro Glu Arg Arg Ser Gly Pro Pro Ala Ser Tyr Cys
              20                25                30


Ala Lys Leu Cys Glu Pro Gln Trp Phe Tyr Glu Glu Thr Glu Ser Ser
         35                40                45


Asp Asp Val Glu Val Leu Thr Leu Lys Lys Phe Lys Gly Asp Leu Ala
     50                55                60


Tyr Arg Arg Gln Glu Tyr Gln Lys Ala Leu Gln Glu Tyr Ser Ser Ile
65                70                75                80


Ser Glu Lys Leu Ser Ser Thr Asn Phe Ala Met Lys Arg Asp Val Gln
              85                90                95


Glu Gly Gln Ala Arg Cys Leu Ala His Leu Gly Arg His Met Glu Ala
              100               105               110


Leu Glu Ile Ala Ala Asn Leu Glu Asn Lys Ala Thr Asn Thr Asp His
         115               120               125


Leu Thr Thr Val Leu Tyr Leu Gln Leu Ala Ile Cys Ser Ser Leu Gln
         130               135               140


Asn Leu Glu Lys Thr Ile Phe Cys Leu Gln Lys Leu Ile Ser Leu His
```

Pro Phe Asn Pro Trp Asn Trp Gly Lys Leu Ala Glu Ala Tyr Leu Asn
                165   170   175

Leu Gly Pro Ala Leu Ser Ala Ala Leu Ala Ser Ser Gln Lys Gln His
                180   185   190

Ser Phe Thr Ser Ser Asp Lys Thr Ile Lys Ser Phe Phe Pro His Ser
                195   200   205

Gly Lys Asp Cys Leu Leu Cys Phe Pro Glu Thr Leu Pro Glu Ser Ser
    210   215   220

Leu Phe Ser Val Glu Ala Asn Ser Ser Asn Ser Gln Lys Asn Glu Lys
225   230   235   240

Ala Leu Thr Asn Ile Gln Asn Cys Met Ala Glu Lys Arg Glu Thr Val
                245   250   255

Leu Ile Glu Thr Gln Leu Lys Ala Cys Ala Ser Phe Ile Arg Thr Arg
                260   265   270

Leu Leu Leu Gln Phe Thr Gln Pro Gln Gln Thr Ser Phe Ala Leu Glu
                275   280   285

Arg Asn Leu Arg Thr Gln Gln Glu Ile Glu Asp Lys Met Lys Gly Phe
    290   295   300

Ser Phe Lys Glu Asp Thr Leu Leu Leu Ile Ala Glu Val Met Gly Glu
305   310   315   320

Asp Ile Pro Glu Lys Ile Lys Asp Glu Val His Pro Glu Val Lys Cys
                325   330   335

Val Gly Ser Val Ala Leu Thr Ala Leu Val Thr Val Ser Ser Glu Glu
                340   345   350

Phe Glu Asp Lys Trp Phe Arg Lys Ile Lys Asp His Phe Cys Pro Phe
                355   360   365

Glu Asn Gln Phe His Thr Glu Ile Gln Ile Leu Ala
    370   375   380

<210> 67
<211> 518
<212> PRT
<213> Homo sapiens

<400> 67

Met Lys Ser Arg Phe Ser Thr Ile Asp Leu Arg Ala Val Leu Ala Glu
1   5   10   15

Leu Asn Ala Ser Leu Leu Gly Met Arg Val Asn Asn Val Tyr Asp Val
            20   25   30

Asp Asn Lys Thr Tyr Leu Ile Arg Leu Gln Lys Pro Asp Phe Lys Ala
        35   40   45

Thr Leu Leu Leu Glu Ser Gly Ile Arg Ile His Thr Thr Glu Phe Glu
        50   55   60

Trp Pro Lys Asn Met Met Pro Ser Ser Phe Ala Met Lys Cys Arg Lys
65   70   75   80

His Leu Lys Ser Arg Arg Leu Val Ser Ala Lys Gln Leu Gly Val Asp
                85   90   95

Arg Ile Val Asp Phe Gln Phe Gly Ser Asp Glu Ala Ala Tyr His Leu
            100   105   110

Ile Ile Glu Leu Tyr Asp Arg Gly Asn Ile Val Leu Thr Asp Tyr Glu
            115   120   125

Tyr Val Ile Leu Asn Ile Leu Arg Phe Arg Thr Asp Glu Ala Asp Asp
        130   135   140

Val Lys Phe Ala Val Arg Glu Arg Tyr Pro Leu Asp His Ala Arg Ala
145   150   155   160

Ala Glu Pro Leu Leu Thr Leu Glu Arg Leu Thr Glu Ile Val Ala Ser
                165   170   175

Ala Pro Lys Gly Glu Leu Leu Lys Arg Val Leu Asn Pro Leu Leu Pro
            180   185   190

Tyr Gly Pro Ala Leu Ile Glu His Cys Leu Leu Glu Asn Gly Phe Ser
            195   200   205

Gly Asn Val Lys Val Asp Glu Lys Leu Glu Thr Lys Asp Ile Glu Lys
    210   215   220

Val Leu Val Ser Leu Gln Lys Ala Glu Asp Tyr Met Lys Thr Thr Ser
225   230   235   240

Asn Phe Ser Gly Lys Gly Tyr Ile Ile Gln Lys Arg Glu Ile Lys Pro
                245   250   255

```
Cys Leu Glu Ala Asp Lys Pro Val Glu Asp Ile Leu Thr Tyr Glu Glu
        260             265             270

Phe His Pro Phe Leu Phe Ser Gln His Ser Gln Cys Pro Tyr Ile Glu
        275             280             285

Phe Glu Ser Phe Asp Lys Ala Val Asp Glu Phe Tyr Ser Lys Ile Glu
        290             295             300

Gly Gln Lys Ile Asp Leu Lys Ala Leu Gln Gln Glu Lys Gln Ala Leu
305             310             315             320

Lys Lys Leu Asp Asn Val Arg Lys Asp His Glu Asn Arg Leu Glu Ala
            325             330             335

Leu Gln Gln Ala Gln Glu Ile Asp Lys Leu Lys Gly Glu Leu Ile Glu
        340             345             350

Met Asn Leu Gln Ile Val Asp Arg Ala Ile Gln Val Val Arg Ser Ala
        355             360             365

Leu Ala Asn Gln Ile Asp Trp Thr Glu Ile Gly Leu Ile Val Lys Glu
        370             375             380

Ala Gln Ala Gln Gly Asp Pro Val Ala Ser Ala Ile Lys Glu Leu Lys
385             390             395             400

Leu Gln Thr Asn His Val Thr Met Leu Leu Arg Asn Pro Tyr Leu Leu
            405             410             415

Ser Glu Glu Glu Asp Asp Asp Val Asp Gly Asp Val Asn Val Glu Lys
        420             425             430

Asn Glu Thr Glu Pro Pro Lys Gly Lys Lys Lys Gln Lys Asn Lys
        435             440             445

Gln Leu Gln Lys Pro Gln Lys Asn Lys Pro Leu Leu Val Asp Val Asp
        450             455             460

Leu Ser Leu Ser Ala Tyr Ala Asn Ala Lys Lys Tyr Tyr Asp His Lys
465             470             475             480

Arg Tyr Ala Ala Lys Lys Thr Gln Lys Thr Val Glu Ala Ala Glu Lys
            485             490             495

Ala Phe Lys Ser Ala Glu Lys Lys Thr Lys Gln Thr Leu Lys Glu Val
        500             505             510
```

Gln Thr Val Thr Ser Ile
            515

<210> 68
<211> 362
<212> PRT
<213> Homo sapiens

<400> 68

Met Thr Gln Val Asp Gln Glu Asp Ile Thr Leu Gln Ser Gly Arg Asp
1   5   10   15

Glu Leu Asn Glu Glu Leu Ile Gln Glu Glu Ser Ser Glu Asp Glu Gly
                20   25   30

Glu Tyr Glu Glu Val Arg Lys Asp Gln Asp Ser Val Gly Glu Met Lys
            35   40   45

Asp Glu Gly Glu Glu Thr Leu Asn Tyr Pro Asp Thr Thr Ile Asp Leu
        50   55   60

Ser His Leu Gln Pro Gln Arg Ser Ile Gln Lys Leu Ala Ser Lys Glu
65   70   75   80

Glu Ser Ser Asn Ser Ser Asp Ser Lys Ser Gln Ser Arg Arg His Leu
                85   90   95

Ser Ala Lys Glu Arg Arg Glu Met Lys Lys Lys Lys Leu Pro Ser Asp
            100   105   110

Ser Gly Asp Leu Glu Ala Leu Glu Gly Lys Asp Lys Glu Lys Glu Ser
            115   120   125

Thr Val His Ile Glu Thr His Gln Asn Thr Ser Lys Asn Val Ala Ala
        130   135   140

Val Gln Pro Met Lys Arg Gly Gln Lys Ser Lys Met Lys Lys Met Lys
145   150   155   160

Glu Lys Tyr Lys Asp Gln Asp Glu Glu Asp Arg Glu Leu Ile Met Lys
                165   170   175

Leu Leu Gly Ser Ala Gly Ser Asn Lys Glu Glu Lys Gly Lys Lys Gly
            180   185   190

Lys Lys Gly Lys Thr Lys Asp Glu Pro Val Lys Lys Gln Pro Gln Lys
            195   200   205

```
Pro Arg Gly Gly Gln Arg Val Ser Asp Asn Ile Lys Lys Glu Thr Pro
    210                 215                 220


Phe Leu Glu Val Ile Thr His Glu Leu Gln Asp Phe Ala Val Asp Asp
225                 230                 235                 240


Pro His Asp Asp Lys Glu Glu Gln Asp Leu Asp Gln Gln Gly Asn Glu
                245                 250                 255


Glu Asn Leu Phe Asp Ser Leu Thr Gly Gln Pro His Pro Glu Asp Val
                260                 265                 270


Leu Leu Phe Ala Ile Pro Ile Cys Ala Pro Tyr Thr Thr Met Thr Asn
                275                 280                 285


Tyr Lys Tyr Lys Val Lys Leu Thr Pro Gly Val Gln Lys Lys Gly Lys
        290                 295                 300


Ala Ala Lys Thr Ala Leu Asn Ser Phe Met His Ser Lys Glu Ala Thr
305                 310                 315                 320


Ala Arg Glu Lys Asp Leu Phe Arg Ser Val Lys Asp Thr Asp Leu Ser
                325                 330                 335


Arg Asn Ile Pro Gly Lys Val Lys Ser Val Cys Thr Gln Ser Ser Glu
                340                 345                 350


Arg Lys Lys Glu Ile Ala Glu Met Lys Phe
        355                 360


<210>   69
<211>   634
<212>   PRT
<213>   Homo sapiens

<400>   69

Met Glu Ser Gly Arg Gly Ser Ser Thr Pro Pro Gly Pro Ile Ala Ala
1               5                   10                  15


Leu Gly Met Pro Asp Thr Gly Pro Gly Ser Ser Ser Leu Gly Lys Leu
            20                  25                  30


Gln Ala Leu Pro Val Gly Pro Arg Ala His Cys Gly Asp Pro Val Ser
        35                  40                  45


Leu Ala Ala Ala Gly Asp Gly Ser Pro Asp Ile Gly Pro Thr Gly Glu
    50                  55                  60
```

Leu Ser Gly Ser Leu Lys Ile Pro Asn Arg Asp Ser Gly Ile Asp Ser
65   70   75   80

Pro Ser Ser Ser Val Ala Gly Glu Asn Phe Pro Cys Glu Glu Gly Leu
               85   90   95

Glu Ala Gly Pro Ser Pro Thr Val Leu Gly Ala His Ala Glu Met Ala
          100   105   110

Leu Asp Ser Gln Val Pro Lys Val Thr Pro Gln Glu Glu Ala Asp Ser
     115   120   125

Asp Val Gly Glu Glu Pro Asp Ser Glu Asn Thr Pro Gln Lys Ala Asp
     130   135   140

Lys Asp Ala Gly Leu Ala Gln His Ser Gly Pro Gln Lys Leu Leu His
145   150   155   160

Ile Ala Gln Glu Leu Leu His Thr Glu Glu Thr Tyr Val Lys Arg Leu
               165   170   175

His Leu Leu Asp Gln Val Phe Cys Thr Arg Leu Thr Asp Ala Gly Ile
          180   185   190

Pro Pro Glu Val Ile Met Gly Ile Phe Ser Asn Ile Ser Ser Ile His
          195   200   205

Arg Phe His Gly Gln Phe Leu Leu Pro Glu Leu Lys Thr Arg Ile Thr
     210   215   220

Glu Glu Trp Asp Thr Asn Pro Arg Leu Gly Asp Ile Leu Gln Lys Leu
225   230   235   240

Ala Pro Phe Leu Lys Met Tyr Gly Glu Tyr Val Lys Asn Phe Asp Arg
               245   250   255

Ala Val Gly Leu Val Ser Thr Trp Thr Gln Arg Ser Pro Leu Phe Lys
          260   265   270

Asp Val Val His Ser Ile Gln Lys Gln Glu Val Cys Gly Asn Leu Thr
     275   280   285

Leu Gln His His Met Leu Glu Pro Val Gln Arg Val Pro Arg Tyr Glu
     290   295   300

Leu Leu Leu Lys Asp Tyr Leu Lys Arg Leu Pro Gln Asp Ala Pro Asp
305   310   315   320

Arg Lys Asp Ala Glu Arg Ser Leu Glu Leu Ile Ser Thr Ala Ala Asn
            325   330   335

His Ser Asn Ala Ala Ile Arg Lys Val Glu Lys Met His Lys Leu Leu
            340   345   350

Glu Val Tyr Glu Gln Leu Gly Gly Glu Glu Asp Ile Val Asn Pro Ala
            355   360   365

Asn Glu Leu Ile Lys Glu Gly Gln Ile Gln Lys Leu Ser Ala Lys Asn
        370   375   380

Gly Thr Pro Gln Asp Arg His Leu Phe Leu Phe Asn Ser Met Ile Leu
385   390   395   400

Tyr Cys Val Pro Lys Leu Arg Leu Met Gly Gln Lys Phe Ser Val Arg
                405   410   415

Glu Lys Met Asp Ile Ser Gly Leu Gln Val Gln Asp Ile Val Lys Pro
            420   425   430

Asn Thr Ala His Thr Phe Ile Ile Thr Gly Arg Lys Arg Ser Leu Glu
            435   440   445

Leu Gln Thr Arg Thr Glu Glu Glu Lys Lys Glu Trp Ile Gln Ile Ile
        450   455   460

Gln Ala Thr Ile Glu Lys His Lys Gln Asn Ser Glu Thr Phe Lys Ala
465   470   475   480

Phe Gly Gly Ala Phe Ser Gln Asp Glu Asp Pro Ser Leu Ser Pro Asp
                485   490   495

Met Pro Ile Thr Ser Thr Ser Pro Val Glu Pro Val Val Thr Thr Glu
            500   505   510

Gly Ser Ser Gly Ala Ala Gly Leu Glu Pro Arg Lys Leu Ser Ser Lys
        515   520   525

Thr Arg Arg Asp Lys Glu Lys Gln Ser Cys Lys Ser Cys Gly Glu Thr
    530   535   540

Phe Asn Ser Ile Thr Lys Arg Arg His His Cys Lys Leu Cys Gly Ala
545   550   555   560

Val Ile Cys Gly Lys Cys Ser Glu Phe Lys Ala Glu Asn Ser Arg Gln
                565   570   575

```
Ser Arg Val Cys Arg Asp Cys Phe Leu Thr Gln Pro Val Ala Pro Glu
        580             585             590

Ser Thr Glu Val Gly Ala Pro Ser Ser Cys Ser Pro Pro Gly Gly Ala
        595             600             605

Ala Glu Pro Pro Asp Thr Cys Ser Cys Ala Pro Ala Ala Pro Ala Ala
    610             615             620

Ser Ala Phe Gly Val Ser Leu Gly Pro Gly
625             630
```

```
<210>  70
<211>  284
<212>  PRT
<213>  Homo sapiens

<400>  70
```

```
Met Asp Ala Ile Lys Lys Lys Met Gln Met Leu Lys Leu Asp Lys Glu
1               5               10              15

Asn Ala Leu Asp Arg Ala Glu Gln Ala Glu Ala Asp Lys Lys Ala Ala
        20              25              30

Glu Asp Arg Ser Lys Gln Leu Glu Asp Glu Leu Val Ser Leu Gln Lys
        35              40              45

Lys Leu Lys Gly Thr Glu Asp Glu Leu Asp Lys Tyr Ser Glu Ala Leu
    50              55              60

Lys Asp Ala Gln Glu Lys Leu Glu Leu Ala Glu Lys Lys Ala Thr Asp
65              70              75              80

Ala Glu Ala Asp Val Ala Ser Leu Asn Arg Arg Ile Gln Leu Val Glu
        85              90              95

Glu Glu Leu Asp Arg Ala Gln Glu Arg Leu Ala Thr Ala Leu Gln Lys
        100             105             110

Leu Glu Glu Ala Glu Lys Ala Ala Asp Glu Ser Glu Arg Gly Met Lys
        115             120             125

Val Ile Glu Ser Arg Ala Gln Lys Asp Glu Glu Lys Met Glu Ile Gln
    130             135             140

Glu Ile Gln Leu Lys Glu Ala Lys His Ile Ala Glu Asp Ala Asp Arg
145             150             155             160

Lys Tyr Glu Glu Val Ala Arg Lys Leu Val Ile Ile Glu Ser Asp Leu
```

```
            165                    170                    175
Glu Arg Ala Glu Glu Arg Ala Glu Leu Ser Glu Gly Gln Val Arg Gln
            180                    185                    190

Leu Glu Glu Gln Leu Arg Ile Met Asp Gln Thr Leu Lys Ala Leu Met
            195                    200                    205

Ala Ala Glu Asp Lys Tyr Ser Gln Lys Glu Asp Arg Tyr Glu Glu Glu
            210                    215                    220

Ile Lys Val Leu Ser Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu
225                    230                    235                    240

Phe Ala Glu Arg Ser Val Thr Lys Leu Glu Lys Ser Ile Asp Asp Leu
            245                    250                    255

Glu Glu Lys Val Ala His Ala Lys Glu Glu Asn Leu Ser Met His Gln
            260                    265                    270

Met Leu Asp Gln Thr Leu Leu Glu Leu Asn Asn Met
            275                    280
```

```
<210>  71
<211>  683
<212>  PRT
<213>  Homo sapiens

<400>  71

Met Thr Ala Val His Gly Arg Phe Thr Arg Ser Gln Thr Leu Ile Gln
1                   5                   10                  15

Asn Gly Gly Glu Ile Asp Cys Val Asp Lys Asp Gly Asn Thr Pro Leu
            20                  25                  30

His Val Ala Ala Arg Tyr Gly His Glu Leu Leu Ile Asn Thr Leu Ile
            35                  40                  45

Thr Ser Gly Ala Asp Thr Ala Lys Cys Gly Ile His Ser Met Phe Pro
            50                  55                  60

Leu His Leu Ala Ala Leu Asn Ala His Ser Asp Cys Cys Arg Lys Leu
65                  70                  75                  80

Leu Ser Ser Gly Gln Lys Tyr Ser Ile Val Ser Leu Phe Ser Asn Glu
            85                  90                  95

His Val Leu Ser Ala Gly Phe Glu Ile Asp Thr Pro Asp Lys Phe Gly
            100                 105                 110
```

```
Arg Thr Cys Leu His Ala Ala Ala Ala Gly Gly Asn Val Glu Cys Ile
    115                 120                 125

Lys Leu Leu Gln Ser Ser Gly Ala Asp Phe His Lys Lys Asp Lys Cys
    130                 135                 140

Gly Arg Thr Pro Leu His Tyr Ala Ala Ala Asn Cys His Phe His Cys
145                 150                 155                 160

Ile Glu Thr Leu Val Thr Thr Gly Ala Asn Val Asn Glu Thr Asp Asp
                165                 170                 175

Trp Gly Arg Thr Ala Leu His Tyr Ala Ala Ala Ser Asp Met Asp Arg
                180                 185                 190

Asn Lys Thr Ile Leu Gly Asn Ala His Asp Asn Ser Glu Glu Leu Glu
    195                 200                 205

Arg Ala Arg Glu Leu Lys Glu Lys Glu Ala Thr Leu Cys Leu Glu Phe
    210                 215                 220

Leu Leu Gln Asn Asp Ala Asn Pro Ser Ile Arg Asp Lys Glu Gly Tyr
225                 230                 235                 240

Asn Ser Ile His Tyr Ala Ala Ala Tyr Gly His Arg Gln Cys Leu Glu
                245                 250                 255

Leu Leu Leu Glu Arg Thr Asn Ser Gly Phe Glu Glu Ser Asp Ser Gly
                260                 265                 270

Ala Thr Lys Ser Pro Leu His Leu Ala Ala Tyr Asn Gly His His Gln
    275                 280                 285

Ala Leu Glu Val Leu Leu Gln Ser Leu Val Asp Leu Asp Ile Arg Asp
    290                 295                 300

Glu Lys Gly Arg Thr Ala Leu Asp Leu Ala Ala Phe Lys Gly His Thr
305                 310                 315                 320

Glu Cys Val Glu Ala Leu Ile Asn Gln Gly Ala Ser Ile Phe Val Lys
                325                 330                 335

Asp Asn Val Thr Lys Arg Thr Pro Leu His Ala Ser Val Ile Asn Gly
                340                 345                 350

His Thr Leu Cys Leu Arg Leu Leu Leu Glu Ile Ala Asp Asn Pro Glu
    355                 360                 365
```

```
Ala Val Asp Val Lys Asp Ala Lys Gly Gln Thr Pro Leu Met Leu Ala
    370                 375                 380

Val Ala Tyr Gly His Ile Asp Ala Val Ser Leu Leu Leu Glu Lys Glu
385                 390                 395                 400

Ala Asn Val Asp Thr Val Asp Ile Leu Gly Cys Thr Ala Leu His Arg
                405                 410                 415

Gly Ile Met Thr Gly His Glu Glu Cys Val Gln Met Leu Leu Glu Gln
                420                 425                 430

Glu Val Ser Ile Leu Cys Lys Asp Ser Arg Gly Arg Thr Pro Leu His
                435                 440                 445

Tyr Ala Ala Ala Arg Gly His Ala Thr Trp Leu Ser Glu Leu Leu Gln
    450                 455                 460

Met Ala Leu Ser Glu Glu Asp Cys Cys Phe Lys Asp Asn Gln Gly Tyr
465                 470                 475                 480

Thr Pro Leu His Trp Ala Cys Tyr Asn Gly Asn Glu Asn Cys Ile Glu
                485                 490                 495

Val Leu Leu Glu Gln Lys Cys Phe Arg Lys Phe Ile Gly Asn Pro Phe
                500                 505                 510

Thr Pro Leu His Cys Ala Ile Ile Asn Asp His Gly Asn Cys Ala Ser
                515                 520                 525

Leu Leu Leu Gly Ala Ile Asp Ser Ser Ile Val Ser Cys Arg Asp Asp
    530                 535                 540

Lys Gly Arg Thr Pro Leu His Ala Ala Ala Phe Ala Asp His Val Glu
545                 550                 555                 560

Cys Leu Gln Leu Leu Leu Arg His Ser Ala Pro Val Asn Ala Val Asp
                565                 570                 575

Asn Ser Gly Lys Thr Ala Leu Met Met Ala Ala Glu Asn Gly Gln Ala
                580                 585                 590

Gly Ala Val Asp Ile Leu Val Asn Ser Ala Gln Ala Asp Leu Thr Val
    595                 600                 605

Lys Asp Lys Asp Leu Asn Thr Pro Leu His Leu Ala Cys Ser Lys Gly
    610                 615                 620
```

His Glu Lys Cys Ala Leu Leu Ile Leu Asp Lys Ile Gln Asp Glu Ser
625   630   635   640

Leu Ile Asn Glu Lys Asn Asn Ala Leu Gln Thr Pro Leu His Val Ala
                   645   650   655

Ala Arg Asn Gly Leu Lys Val Val Val Glu Glu Leu Leu Ala Lys Gly
                   660   665   670

Ala Cys Val Leu Ala Val Asp Glu Asn Gly Cys
           675   680

<210> 72
<211> 547
<212> PRT
<213> Homo sapiens

<400> 72

Met Ala Ala Val Ser Leu Arg Leu Gly Asp Leu Val Trp Gly Lys Leu
1   5   10   15

Gly Arg Tyr Pro Pro Trp Pro Gly Lys Ile Val Asn Pro Pro Lys Asp
           20   25   30

Leu Lys Lys Pro Arg Gly Lys Lys Cys Phe Phe Val Lys Phe Phe Gly
           35   40   45

Thr Glu Asp His Ala Trp Ile Lys Val Glu Gln Leu Lys Pro Tyr His
   50   55   60

Ala His Lys Glu Glu Met Ile Lys Ile Asn Lys Gly Lys Arg Phe Gln
65   70   75   80

Gln Ala Val Asp Ala Val Glu Glu Phe Leu Arg Arg Ala Lys Gly Lys
                   85   90   95

Asp Gln Thr Ser Ser His Asn Ser Ser Asp Asp Lys Asn Arg Arg Asn
               100   105   110

Ser Ser Glu Glu Arg Ser Arg Pro Asn Ser Gly Asp Glu Lys Arg Lys
           115   120   125

Leu Ser Leu Ser Glu Gly Lys Val Lys Lys Asn Met Gly Glu Gly Lys
   130   135   140

Lys Arg Val Ser Ser Gly Ser Ser Glu Arg Gly Ser Lys Ser Pro Leu
145   150   155   160

Lys Arg Ala Gln Glu Gln Ser Pro Arg Lys Arg Gly Arg Pro Pro Lys
            165   170   175

Asp Glu Lys Asp Leu Thr Ile Pro Glu Ser Ser Thr Val Lys Gly Met
            180   185   190

Met Ala Gly Pro Met Ala Ala Phe Lys Trp Gln Pro Thr Ala Ser Glu
            195   200   205

Pro Val Lys Asp Ala Asp Pro His Phe His His Phe Leu Leu Ser Gln
    210   215   220

Thr Glu Lys Pro Ala Val Cys Tyr Gln Ala Ile Thr Lys Lys Leu Lys
225   230   235   240

Ile Cys Glu Glu Glu Thr Gly Ser Thr Ser Ile Gln Ala Ala Asp Ser
            245   250   255

Thr Ala Val Asn Gly Ser Ile Thr Pro Thr Asp Lys Lys Ile Gly Phe
            260   265   270

Leu Gly Leu Gly Leu Met Gly Ser Gly Ile Val Ser Asn Leu Leu Lys
            275   280   285

Met Gly His Thr Val Thr Val Trp Asn Arg Thr Ala Glu Lys Glu Gly
    290   295   300

Ala Arg Leu Gly Arg Thr Pro Ala Glu Val Val Ser Thr Cys Asp Ile
305   310   315   320

Thr Phe Ala Cys Val Ser Asp Pro Lys Ala Ala Lys Asp Leu Val Leu
            325   330   335

Gly Pro Ser Gly Val Leu Gln Gly Ile Arg Pro Gly Lys Cys Tyr Val
            340   345   350

Asp Met Ser Thr Val Asp Ala Asp Thr Val Thr Glu Leu Ala Gln Val
            355   360   365

Ile Val Ser Arg Gly Gly Arg Phe Leu Glu Ala Pro Val Ser Gly Asn
    370   375   380

Gln Gln Leu Ser Asn Asp Gly Met Leu Val Ile Leu Ala Ala Gly Asp
385   390   395   400

Arg Gly Leu Tyr Glu Asp Cys Ser Ser Cys Phe Gln Ala Met Gly Lys
            405   410   415

Thr Ser Phe Phe Leu Gly Glu Val Gly Asn Ala Ala Lys Met Met Leu
            420   425   430

Ile Val Asn Met Val Gln Gly Ser Phe Met Ala Thr Ile Ala Glu Gly
            435   440   445

Leu Thr Leu Ala Gln Val Thr Gly Gln Ser Gln Gln Thr Leu Leu Asp
    450   455   460

Ile Leu Asn Gln Gly Gln Leu Ala Ser Ile Phe Leu Asp Gln Lys Cys
465   470   475   480

Gln Asn Ile Leu Gln Gly Asn Phe Lys Pro Asp Phe Tyr Leu Lys Tyr
                485   490   495

Ile Gln Lys Asp Leu Arg Leu Ala Ile Ala Leu Gly Asp Ala Val Asn
            500   505   510

His Pro Thr Pro Met Ala Ala Ala Ala Asn Glu Val Tyr Lys Arg Ala
            515   520   525

Lys Ala Leu Asp Gln Ser Asp Asn Asp Met Ser Ala Val Tyr Arg Ala
    530   535   540

Tyr Ile His
545

<210> 73
<211> 638
<212> PRT
<213> Homo sapiens

<400> 73

Met Ser Leu Gly Gln Ser Ala Cys Leu Phe Leu Ser Ile Ala Arg Ser
1   5   10   15

Arg Ser Val Met Thr Gly Glu Gln Met Ala Ala Phe His Pro Ser Ser
            20   25   30

Thr Pro Asn Pro Leu Glu Arg Pro Ile Lys Met Gly Trp Leu Lys Lys
            35   40   45

Gln Arg Ser Ile Val Lys Asn Trp Gln Gln Arg Tyr Phe Val Leu Arg
    50   55   60

Ala Gln Gln Leu Tyr Tyr Tyr Lys Asp Glu Glu Asp Thr Lys Pro Gln
65   70   75   80

```
Gly Cys Met Tyr Leu Pro Gly Cys Thr Ile Lys Glu Ile Ala Thr Asn
             85                  90                  95

Pro Glu Glu Ala Gly Lys Phe Val Phe Glu Ile Ile Pro Ala Ser Trp
            100                 105                 110

Asp Gln Asn Arg Met Gly Gln Asp Ser Tyr Val Leu Met Ala Ser Ser
        115                 120                 125

Gln Ala Glu Met Glu Glu Trp Val Lys Phe Leu Arg Arg Val Ala Gly
    130                 135                 140

Thr Pro Cys Gly Val Phe Gly Gln Arg Leu Asp Glu Thr Val Ala Tyr
145                 150                 155                 160

Glu Gln Lys Phe Gly Pro His Leu Val Pro Ile Leu Val Glu Lys Cys
                165                 170                 175

Ala Glu Phe Ile Leu Glu His Gly Arg Asn Glu Glu Gly Ile Phe Arg
            180                 185                 190

Leu Pro Gly Gln Asp Asn Leu Val Lys Gln Leu Arg Asp Ala Phe Asp
        195                 200                 205

Ala Gly Glu Arg Pro Ser Phe Asp Arg Asp Thr Asp Val His Thr Val
    210                 215                 220

Ala Ser Leu Leu Lys Leu Tyr Leu Arg Asp Leu Pro Glu Pro Val Val
225                 230                 235                 240

Pro Trp Ser Gln Tyr Glu Gly Phe Leu Leu Cys Gly Gln Leu Thr Asn
                245                 250                 255

Ala Asp Glu Ala Lys Ala Gln Gln Glu Leu Met Lys Gln Leu Ser Ile
            260                 265                 270

Leu Pro Arg Asp Asn Tyr Ser Leu Leu Ser Tyr Ile Cys Arg Phe Leu
        275                 280                 285

His Glu Ile Gln Leu Asn Cys Ala Val Asn Lys Met Ser Val Asp Asn
    290                 295                 300

Leu Ala Thr Val Ile Gly Val Asn Leu Ile Arg Ser Lys Val Glu Asp
305                 310                 315                 320

Pro Ala Val Ile Met Arg Gly Thr Pro Gln Ile Gln Arg Val Met Thr
                325                 330                 335
```

```
Met Met Ile Arg Asp His Glu Val Leu Phe Pro Lys Ser Lys Asp Ile
            340                 345                 350

Pro Leu Ser Pro Pro Ala Gln Lys Asn Asp Pro Lys Lys Ala Pro Val
            355                 360                 365

Ala Arg Ser Ser Val Gly Trp Asp Ala Thr Glu Asp Leu Arg Ile Ser
    370                 375                 380

Arg Thr Asp Ser Phe Ser Ser Met Thr Ser Asp Ser Asp Thr Thr Ser
385                 390                 395                 400

Pro Thr Gly Gln Gln Pro Ser Asp Ala Phe Pro Glu Asp Ser Ser Lys
                405                 410                 415

Val Pro Arg Glu Lys Pro Gly Asp Trp Lys Met Gln Ser Arg Lys Arg
            420                 425                 430

Thr Gln Thr Leu Pro Asn Arg Lys Cys Phe Leu Thr Ser Ala Phe Gln
            435                 440                 445

Gly Ala Asn Ser Ser Lys Met Glu Ile Phe Lys Asn Glu Phe Trp Ser
    450                 455                 460

Pro Ser Ser Glu Ala Lys Ala Gly Glu Gly His Arg Arg Thr Met Ser
465                 470                 475                 480

Gln Asp Leu Arg Gln Leu Ser Asp Ser Gln Arg Thr Ser Thr Tyr Asp
                485                 490                 495

Asn Val Pro Ser Leu Pro Gly Ser Pro Gly Glu Glu Ala Ser Ala Leu
            500                 505                 510

Ser Ser Gln Ala Cys Asp Ser Lys Gly Asp Thr Leu Ala Ser Pro Asn
            515                 520                 525

Ser Glu Thr Gly Pro Gly Lys Lys Asn Ser Gly Glu Glu Glu Ile Asp
    530                 535                 540

Ser Leu Gln Arg Met Val Gln Glu Leu Arg Lys Glu Ile Glu Thr Gln
545                 550                 555                 560

Lys Gln Met Tyr Glu Glu Gln Ile Lys Asn Leu Glu Lys Glu Asn Tyr
                565                 570                 575

Asp Val Trp Ala Lys Val Val Arg Leu Asn Glu Glu Leu Glu Lys Glu
            580                 585                 590
```

Lys Lys Lys Ser Ala Ala Leu Glu Ile Ser Leu Arg Asn Met Glu Arg
        595   600   605

Ser Arg Glu Asp Val Glu Lys Arg Asn Lys Ala Leu Glu Glu Glu Val
    610   615   620

Lys Glu Phe Val Lys Ser Met Lys Glu Pro Lys Thr Glu Ala
625   630   635

<210> 74
<211> 239
<212> PRT
<213> Homo sapiens

<400> 74

Met His Gln Thr Tyr Ser Arg His Cys Arg Pro Glu Glu Ser Thr Phe
1   5   10   15

Ser Ala Ala Met Thr Thr Met Gln Gly Met Glu Gln Ala Met Pro Gly
        20   25   30

Ala Gly Pro Gly Val Pro Gln Leu Gly Asn Met Ala Val Ile His Ser
        35   40   45

His Leu Trp Lys Gly Leu Gln Glu Lys Phe Leu Lys Gly Glu Pro Lys
    50   55   60

Val Leu Gly Val Val Gln Ile Leu Thr Ala Leu Met Ser Leu Ser Met
65   70   75   80

Gly Ile Thr Met Met Cys Met Ala Ser Asn Thr Tyr Gly Ser Asn Pro
            85   90   95

Ile Ser Val Tyr Ile Gly Tyr Thr Ile Trp Gly Ser Val Met Phe Ile
            100   105   110

Ile Ser Gly Ser Leu Ser Ile Ala Ala Gly Ile Arg Thr Thr Lys Gly
        115   120   125

Leu Val Arg Gly Ser Leu Gly Met Asn Ile Thr Ser Ser Val Leu Ala
    130   135   140

Ala Ser Gly Ile Leu Ile Asn Thr Phe Ser Leu Ala Phe Tyr Ser Phe
145   150   155   160

His His Pro Tyr Cys Asn Tyr Tyr Gly Asn Ser Asn Asn Cys His Gly
            165   170   175

Thr Met Ser Ile Leu Met Gly Leu Asp Gly Met Val Leu Leu Leu Ser

Val Leu Glu Phe Cys Ile Ala Val Ser Leu Ser Ala Phe Gly Cys Lys
        195   200   205

Val Leu Cys Cys Thr Pro Gly Gly Val Val Leu Ile Leu Pro Ser His
    210   215   220

Ser His Met Ala Glu Thr Ala Ser Pro Thr Pro Leu Asn Glu Val
225   230   235

<210> 75
<211> 91
<212> PRT
<213> Homo sapiens

<400> 75

Met Leu Arg Pro Ser Glu Trp Asn Arg Asp Thr Leu Pro Ser Asn Met
1   5   10   15

Tyr Gln Lys Asn Gly Leu His His Gly Lys Tyr Ala Val Lys Lys Ser
        20   25   30

Arg Arg Thr Asp Val Glu Asp Leu Thr Pro Asn Pro Lys Lys Leu Leu
        35   40   45

Gln Ile Gly Asn Glu Leu Arg Lys Leu Asn Lys Val Ile Ser Asp Leu
    50   55   60

Thr Pro Val Ser Glu Leu Pro Leu Thr Ala Arg Pro Arg Ser Arg Lys
65   70   75   80

Glu Lys Asn Ser Trp Leu Pro Glu Leu Val Gly
            85   90

<210> 76
<211> 849
<212> PRT
<213> Homo sapiens

<400> 76

Met Ser Asp Thr Arg Arg Arg Val Lys Val Tyr Thr Leu Asn Glu Asp
1   5   10   15

Arg Gln Trp Asp Asp Arg Gly Thr Gly His Val Ser Ser Thr Tyr Val
            20   25   30

Glu Glu Leu Lys Gly Met Ser Leu Leu Val Arg Ala Glu Ser Asp Gly
        35   40   45

```
Ser Leu Leu Leu Glu Ser Lys Ile Asn Pro Asn Thr Ala Tyr Gln Lys
    50              55              60

Gln Gln Asp Thr Leu Ile Val Trp Ser Glu Ala Glu Asn Tyr Asp Leu
65              70              75              80

Ala Leu Ser Phe Gln Glu Lys Ala Gly Cys Asp Glu Ile Trp Glu Lys
            85              90              95

Ile Cys Gln Val Gln Gly Lys Asp Pro Ser Val Glu Val Thr Gln Asp
            100             105             110

Leu Ile Asp Glu Ser Glu Glu Glu Arg Phe Glu Glu Met Pro Glu Thr
    115             120             125

Ser His Leu Ile Asp Leu Pro Thr Cys Glu Leu Asn Lys Leu Glu Glu
    130             135             140

Ile Ala Asp Leu Val Thr Ser Val Leu Ser Ser Pro Ile Arg Arg Glu
145             150             155             160

Lys Leu Ala Leu Ala Leu Glu Asn Glu Gly Tyr Ile Lys Lys Leu Leu
            165             170             175

Gln Leu Phe Gln Ala Cys Glu Asn Leu Glu Asn Thr Glu Gly Leu His
            180             185             190

His Leu Tyr Glu Ile Ile Arg Gly Ile Leu Phe Leu Asn Lys Ala Thr
            195             200             205

Leu Phe Glu Val Met Phe Ser Asp Glu Cys Ile Met Asp Val Val Gly
    210             215             220

Cys Leu Glu Tyr Asp Pro Ala Leu Ala Gln Pro Lys Arg His Arg Glu
225             230             235             240

Phe Leu Thr Lys Thr Ala Lys Phe Lys Glu Val Ile Pro Ile Thr Asp
            245             250             255

Ser Glu Leu Arg Gln Lys Ile His Gln Thr Tyr Arg Val Gln Tyr Ile
            260             265             270

Gln Asp Ile Ile Leu Pro Thr Pro Ser Val Phe Glu Glu Asn Phe Leu
    275             280             285

Ser Thr Leu Thr Ser Phe Ile Phe Phe Asn Lys Val Glu Ile Val Ser
    290             295             300
```

```
Met Leu Gln Glu Asp Glu Lys Phe Leu Ser Glu Val Phe Ala Gln Leu
305           310              315                 320

Thr Asp Glu Ala Thr Asp Asp Asp Lys Arg Arg Glu Leu Val Asn Phe
                325              330                 335

Phe Lys Glu Phe Cys Ala Phe Ser Gln Thr Leu Gln Pro Gln Asn Arg
            340              345                 350

Asp Ala Phe Phe Lys Thr Leu Ala Lys Leu Gly Ile Leu Pro Ala Leu
        355              360                 365

Glu Ile Val Met Gly Met Asp Asp Leu Gln Val Arg Ser Ala Ala Thr
    370              375                 380

Asp Ile Phe Ser Tyr Leu Val Glu Phe Ser Pro Ser Met Val Arg Glu
385              390                 395                 400

Phe Val Met Gln Glu Ala Gln Gln Ser Asp Asp Asp Ile Leu Leu Ile
            405                 410                 415

Asn Val Val Ile Glu Gln Met Ile Cys Asp Thr Asp Pro Glu Leu Gly
        420                 425                 430

Gly Ala Val Gln Leu Met Gly Leu Leu Arg Thr Leu Ile Asp Pro Glu
        435              440                 445

Asn Met Leu Ala Thr Thr Asn Lys Thr Glu Lys Ser Glu Phe Leu Asn
    450              455                 460

Phe Phe Tyr Asn His Cys Met His Val Leu Thr Ala Pro Leu Leu Thr
465              470              475                 480

Asn Thr Ser Glu Asp Lys Cys Glu Lys Asp Phe Phe Leu Lys His Tyr
            485                 490                 495

Arg Tyr Ser Trp Ser Phe Ile Cys Thr Pro Ser His Ser His Ser His
            500              505                 510

Ser Thr Pro Ser Ser Ser Ile Ser Gln Asp Asn Ile Val Gly Ser Asn
        515              520                 525

Lys Asn Asn Thr Ile Cys Pro Asp Asn Tyr Gln Thr Ala Gln Leu Leu
    530              535                 540

Ala Leu Ile Leu Glu Leu Leu Thr Phe Cys Val Glu His His Thr Tyr
545              550              555                 560
```

His Ile Lys Asn Tyr Ile Met Asn Lys Asp Leu Leu Arg Arg Val Leu
            565   570   575

Val Leu Met Asn Ser Lys His Thr Phe Leu Ala Leu Cys Ala Leu Arg
            580   585   590

Phe Met Arg Arg Ile Ile Gly Leu Lys Asp Glu Phe Tyr Asn Arg Tyr
            595   600   605

Ile Thr Lys Gly Asn Leu Phe Glu Pro Val Ile Asn Ala Leu Leu Asp
            610   615   620

Asn Gly Thr Arg Tyr Asn Leu Leu Asn Ser Ala Val Ile Glu Leu Phe
625   630   635   640

Glu Phe Ile Arg Val Glu Asp Ile Lys Ser Leu Thr Ala His Ile Val
            645   650   655

Glu Asn Phe Tyr Lys Ala Leu Glu Ser Ile Glu Tyr Val Gln Thr Phe
            660   665   670

Lys Gly Leu Lys Thr Lys Tyr Glu Gln Glu Lys Asp Arg Gln Asn Gln
            675   680   685

Lys Leu Asn Ser Val Pro Ser Ile Leu Arg Ser Asn Arg Phe Arg Arg
            690   695   700

Asp Ala Lys Ala Leu Glu Glu Asp Glu Glu Met Trp Phe Asn Glu Asp
705   710   715   720

Glu Glu Glu Glu Gly Lys Ala Val Val Ala Pro Val Glu Lys Pro Lys
            725   730   735

Pro Glu Asp Asp Phe Pro Asp Asn Tyr Glu Lys Phe Met Glu Thr Lys
            740   745   750

Lys Ala Lys Glu Ser Glu Asp Lys Glu Asn Leu Pro Lys Arg Thr Ser
            755   760   765

Pro Gly Gly Phe Lys Phe Thr Phe Ser His Ser Ala Ser Ala Ala Asn
            770   775   780

Gly Thr Asn Ser Lys Ser Val Val Ala Gln Ile Pro Pro Ala Thr Ser
785   790   795   800

Asn Gly Ser Ser Ser Lys Thr Thr Asn Leu Pro Thr Ser Val Thr Ala
            805   810   815

Thr Lys Gly Ser Leu Val Gly Leu Val Asp Tyr Pro Asp Asp Glu Glu
        820   825   830

Glu Asp Glu Glu Glu Glu Ser Ser Pro Arg Lys Arg Pro Arg Leu Gly
        835   840   845

Ser

<210> 77
<211> 214
<212> PRT
<213> Homo sapiens

<400> 77

Met Ser Gly Gly Gln Thr Glu Gly Arg Val Pro Val Phe Ser His Glu
1   5   10   15

Val Val Pro Asp His Leu Arg Thr Lys Pro Asp Pro Glu Val Glu Glu
        20   25   30

Gln Glu Lys Gln Leu Thr Thr Asp Ala Ala Arg Ile Gly Ala Asp Ala
        35   40   45

Ala Gln Lys Gln Ile Gln Ser Leu Asn Lys Met Cys Ser Asn Leu Leu
    50   55   60

Glu Lys Ile Ser Lys Glu Glu Arg Glu Ser Glu Ser Gly Gly Leu Arg
65   70   75   80

Pro Asn Lys Gln Thr Phe Asn Pro Thr Asp Thr Asn Ala Leu Val Ala
                85   90   95

Ala Val Ala Phe Gly Lys Gly Leu Ser Asn Trp Arg Pro Ser Gly Ser
            100   105   110

Ser Gly Pro Gly Gln Ala Gly Gln Pro Gly Ala Gly Thr Ile Leu Ala
        115   120   125

Gly Thr Ser Gly Leu Gln Gln Val Gln Met Ala Gly Ala Pro Ser Gln
    130   135   140

Gln Gln Pro Met Leu Ser Gly Val Gln Met Ala Gln Ala Gly Gln Pro
145   150   155   160

Gly Lys Met Pro Ser Gly Ile Lys Thr Asn Ile Lys Ser Ala Ser Met
                165   170   175

His Pro Tyr Gln Arg Pro Ser Cys Leu Gly Phe Ile Leu Ala Ile Pro
            180   185   190

Leu Arg Arg Lys Val Lys Lys Leu Leu Gly Gln Glu Gly Lys Lys Asn
        195   200   205

Ala His Leu Gln Leu Trp
    210

<210> 78
<211> 1404
<212> PRT
<213> Homo sapiens

<400> 78

Met Ala Trp Lys Thr Leu Pro Ile Tyr Leu Leu Leu Leu Leu Ser Val
1   5   10   15

Phe Val Ile Gln Gln Val Ser Ser Gln Asp Leu Ser Ser Cys Ala Gly
            20   25   30

Arg Cys Gly Glu Gly Tyr Ser Arg Asp Ala Thr Cys Asn Cys Asp Tyr
        35   40   45

Asn Cys Gln His Tyr Met Glu Cys Cys Pro Asp Phe Lys Arg Val Cys
    50   55   60

Thr Ala Glu Leu Ser Cys Lys Gly Arg Cys Phe Glu Ser Phe Glu Arg
65   70   75   80

Gly Arg Glu Cys Asp Cys Asp Ala Gln Cys Lys Lys Tyr Asp Lys Cys
                85   90   95

Cys Pro Asp Tyr Glu Ser Phe Cys Ala Glu Val His Asn Pro Thr Ser
            100   105   110

Pro Pro Ser Ser Lys Lys Ala Pro Pro Pro Ser Gly Ala Ser Gln Thr
            115   120   125

Ile Lys Ser Thr Thr Lys Arg Ser Pro Lys Pro Pro Asn Lys Lys Lys
    130   135   140

Thr Lys Lys Val Ile Glu Ser Glu Glu Ile Thr Glu Glu His Ser Val
145   150   155   160

Ser Glu Asn Gln Glu Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser
                165   170   175

Ser Thr Ile Arg Lys Ile Lys Ser Ser Lys Asn Ser Ala Ala Asn Arg

180   185   190

Glu Leu Gln Lys Lys Leu Lys Val Lys Asp Asn Lys Lys Asn Arg Thr
        195   200   205

Lys Lys Lys Pro Thr Pro Lys Pro Pro Val Val Asp Glu Ala Gly Ser
    210   215   220

Gly Leu Asp Asn Gly Asp Phe Lys Val Thr Thr Pro Asp Thr Ser Thr
225   230   235   240

Thr Gln His Asn Lys Val Ser Thr Ser Pro Lys Ile Thr Thr Ala Lys
                245   250   255

Pro Ile Asn Pro Arg Pro Ser Leu Pro Pro Asn Ser Asp Thr Ser Lys
                260   265   270

Glu Thr Ser Leu Thr Val Asn Lys Glu Thr Thr Val Glu Thr Lys Glu
            275   280   285

Thr Thr Thr Thr Asn Lys Gln Thr Ser Thr Asp Gly Lys Glu Lys Thr
    290   295   300

Thr Ser Ala Lys Glu Thr Gln Ser Ile Glu Lys Thr Ser Ala Lys Asp
305   310   315   320

Leu Ala Pro Thr Ser Lys Val Leu Ala Lys Pro Thr Pro Lys Ala Glu
                325   330   335

Thr Thr Thr Lys Gly Pro Ala Leu Thr Thr Pro Lys Glu Pro Thr Pro
            340   345   350

Thr Thr Pro Lys Glu Pro Ala Ser Thr Thr Pro Lys Glu Pro Thr Pro
        355   360   365

Thr Thr Ile Lys Ser Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr
    370   375   380

Thr Thr Lys Ser Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
385   390   395   400

Thr Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr
                405   410   415

Thr Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser Ala Pro Thr Thr Pro
            420   425   430

Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr Pro

```
Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Thr Pro Thr Thr Pro
    450                 455                 460

Lys Glu Pro Ala Pro Thr Thr Lys Glu Pro Ala Pro Thr Thr Pro Lys
465                 470                 475                 480

Glu Pro Ala Pro Thr Ala Pro Lys Lys Pro Ala Pro Thr Thr Pro Lys
                485                 490                 495

Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys
                500                 505                 510

Glu Pro Ser Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Thr Lys
                515                 520                 525

Ser Ala Pro Thr Thr Thr Lys Glu Pro Ala Pro Thr Thr Thr Lys Ser
    530                 535                 540

Ala Pro Thr Thr Pro Lys Glu Pro Ser Pro Thr Thr Thr Lys Glu Pro
545                 550                 555                 560

Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro
                565                 570                 575

Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro
                580                 585                 590

Ala Pro Thr Thr Thr Lys Lys Pro Ala Pro Thr Thr Pro Lys Glu Pro
                595                 600                 605

Ala Pro Thr Thr Pro Lys Glu Thr Ala Pro Thr Thr Pro Lys Lys Leu
    610                 615                 620

Thr Pro Thr Thr Pro Glu Lys Leu Ala Pro Thr Thr Pro Glu Lys Pro
625                 630                 635                 640

Ala Pro Thr Thr Pro Glu Glu Leu Ala Pro Thr Thr Pro Glu Glu Pro
                645                 650                 655

Thr Pro Thr Thr Pro Glu Glu Pro Ala Pro Thr Thr Pro Lys Ala Ala
                660                 665                 670

Ala Pro Asn Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Pro
                675                 680                 685

Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Glu Thr
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          690                     695                     700


Ala Pro Thr Thr Pro Lys Gly Thr Ala Pro Thr Thr Leu Lys Glu Pro
705                     710                     715                     720


Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Lys Glu Leu Ala Pro Thr
                    725                     730                     735


Thr Thr Lys Glu Pro Thr Ser Thr Thr Cys Asp Lys Pro Ala Pro Thr
                740                     745                     750


Thr Pro Lys Gly Thr Ala Pro Thr Thr Pro Lys Glu Pro Ala Pro Thr
                755                     760                     765


Thr Pro Lys Glu Pro Ala Pro Thr Thr Pro Lys Gly Thr Ala Pro Thr
        770                     775                     780


Thr Leu Lys Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Lys
785                     790                     795                     800


Glu Leu Ala Pro Thr Thr Thr Lys Gly Pro Thr Ser Thr Thr Ser Asp
                805                     810                     815


Lys Pro Ala Pro Thr Thr Pro Lys Glu Thr Ala Pro Thr Thr Pro Lys
                820                     825                     830


Glu Pro Ala Pro Thr Thr Pro Lys Lys Pro Ala Pro Thr Thr Pro Glu
        835                     840                     845


Thr Pro Pro Pro Thr Thr Ser Glu Val Ser Thr Pro Thr Thr Thr Lys
        850                     855                     860


Glu Pro Thr Thr Ile His Lys Ser Pro Asp Glu Ser Thr Pro Glu Leu
865                     870                     875                     880


Ser Ala Glu Pro Thr Pro Lys Ala Leu Glu Asn Ser Pro Lys Glu Pro
                885                     890                     895


Gly Val Pro Thr Thr Lys Thr Pro Ala Ala Thr Lys Pro Glu Met Thr
                900                     905                     910


Thr Thr Ala Lys Asp Lys Thr Thr Glu Arg Asp Leu Arg Thr Thr Pro
        915                     920                     925


Glu Thr Thr Thr Ala Ala Pro Lys Met Thr Lys Glu Thr Ala Thr Thr
        930                     935                     940


Thr Glu Lys Thr Thr Glu Ser Lys Ile Thr Ala Thr Thr Thr Gln Val
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Thr Ser Thr Thr Thr Gln Asp Thr Thr Pro Phe Lys Ile Thr Thr Leu
                965   970   975

Lys Thr Thr Thr Leu Ala Pro Lys Val Thr Thr Thr Lys Lys Thr Ile
         980   985   990

Thr Thr Thr Glu Ile Met Asn Lys Pro Glu Glu Thr Ala Lys Pro Lys
         995   1000   1005

Asp Arg Ala Thr Asn Ser Lys Ala Thr Thr Pro Lys Pro Gln Lys
     1010   1015   1020

Pro Thr Lys Ala Pro Lys Lys Pro Thr Ser Thr Lys Lys Pro Lys
     1025   1030   1035

Thr Met Pro Arg Val Arg Lys Pro Lys Thr Thr Pro Thr Pro Arg
     1040   1045   1050

Lys Met Thr Ser Thr Met Pro Glu Leu Asn Pro Thr Ser Arg Ile
     1055   1060   1065

Ala Glu Ala Met Leu Gln Thr Thr Thr Arg Pro Asn Gln Thr Pro
     1070   1075   1080

Asn Ser Lys Leu Val Glu Val Asn Pro Lys Ser Glu Asp Ala Gly
     1085   1090   1095

Gly Ala Glu Gly Glu Thr Pro His Met Leu Leu Arg Pro His Val
     1100   1105   1110

Phe Met Pro Glu Val Thr Pro Asp Met Asp Tyr Leu Pro Arg Val
     1115   1120   1125

Pro Asn Gln Gly Ile Ile Ile Asn Pro Met Leu Ser Asp Glu Thr
     1130   1135   1140

Asn Ile Cys Asn Gly Lys Pro Val Asp Gly Leu Thr Thr Leu Arg
     1145   1150   1155

Asn Gly Thr Leu Val Ala Phe Arg Gly His Tyr Phe Trp Met Leu
     1160   1165   1170

Ser Pro Phe Ser Pro Pro Ser Pro Ala Arg Arg Ile Thr Glu Val
     1175   1180   1185

Trp Gly Ile Pro Ser Pro Ile Asp Thr Val Phe Thr Arg Cys Asn

Cys Glu Gly Lys Thr Phe Phe Phe Lys Asp Ser Gln Tyr Trp Arg
    1205   1210   1215

Phe Thr Asn Asp Ile Lys Asp Ala Gly Tyr Pro Lys Pro Ile Phe
    1220   1225   1230

Lys Gly Phe Gly Gly Leu Thr Gly Gln Ile Val Ala Ala Leu Ser
    1235   1240   1245

Thr Ala Lys Tyr Lys Asn Trp Pro Glu Ser Val Tyr Phe Phe Lys
    1250   1255   1260

Arg Gly Gly Ser Ile Gln Gln Tyr Ile Tyr Lys Gln Glu Pro Val
    1265   1270   1275

Gln Lys Cys Pro Gly Arg Arg Pro Ala Leu Asn Tyr Pro Val Tyr
    1280   1285   1290

Gly Glu Thr Thr Gln Val Arg Arg Arg Arg Phe Glu Arg Ala Ile
    1295   1300   1305

Gly Pro Ser Gln Thr His Thr Ile Arg Ile Gln Tyr Ser Pro Ala
    1310   1315   1320

Arg Leu Ala Tyr Gln Asp Lys Gly Val Leu His Asn Glu Val Lys
    1325   1330   1335

Val Ser Ile Leu Trp Arg Gly Leu Pro Asn Val Val Thr Ser Ala
    1340   1345   1350

Ile Ser Leu Pro Asn Ile Arg Lys Pro Asp Gly Tyr Asp Tyr Tyr
    1355   1360   1365

Ala Phe Ser Lys Asp Gln Tyr Tyr Asn Ile Asp Val Pro Ser Arg
    1370   1375   1380

Thr Ala Arg Ala Ile Thr Thr Arg Ser Gly Gln Thr Leu Ser Lys
    1385   1390   1395

Val Trp Tyr Asn Cys Pro
    1400

<210> 79
<211> 784
<212> PRT
<213> Homo sapiens

<400> 79

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Met Val Gly Lys His Leu Gly Ala Arg Lys Asp His Pro Gly Leu Lys
1               5                   10                  15

Ala Lys Glu Asn Asp Glu Asn Cys Gly Pro Thr Thr Thr Val Phe Val
                20                  25                  30

Gly Asn Ile Ser Glu Lys Ala Ser Asp Met Leu Ile Arg Gln Leu Leu
            35                  40                  45

Ala Lys Cys Gly Leu Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser
        50                  55                  60

Gly Lys Leu Gln Ala Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser
65                  70                  75                  80

Thr Leu Arg Ala Leu Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys
                85                  90                  95

Lys Leu Leu Val Lys Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu
            100                 105                 110

Trp Lys Ala Lys Lys Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr
        115                 120                 125

Val Thr Asn Asp Asp Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg
    130                 135                 140

Asp Gln Met Ile Lys Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser
145                 150                 155                 160

Ser Glu Leu Asn Ala Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys
                165                 170                 175

Lys Lys Lys Glu Lys Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala
            180                 185                 190

Pro Leu Ile Pro Tyr Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile
        195                 200                 205

Glu Met Glu Glu Asp Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys
    210                 215                 220

Phe Arg Asp Thr His Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu
225                 230                 235                 240

Lys Glu Arg Gln Glu Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu
                245                 250                 255
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Arg Glu Arg Glu Arg Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg
            260   265   270

Glu Arg Glu Arg Glu Lys Glu Lys Glu Arg Glu Arg Glu Arg Glu Arg
        275   280   285

Asp Arg Asp Arg Asp Arg Thr Lys Glu Arg Asp Arg Asp Arg Asp Arg
    290   295   300

Glu Arg Asp Arg Asp Arg Asp Arg Glu Arg Ser Ser Asp Arg Asn Lys
305   310   315   320

Asp Arg Ser Arg Ser Arg Glu Lys Ser Arg Asp Arg Glu Arg Glu Arg
            325   330   335

Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg
        340   345   350

Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys
        355   360   365

Asp Lys Lys Arg Asp Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg
    370   375   380

Arg Lys Leu Glu Arg Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu
385   390   395   400

Arg Leu Lys Asn Trp Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr
            405   410   415

Glu Lys Glu Ala Glu Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys
        420   425   430

Glu Ala Lys Arg Leu Lys Glu Phe Leu Glu Asp Tyr Asp Asp Asp Arg
        435   440   445

Asp Asp Pro Lys Tyr Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg
    450   455   460

Asp Arg Glu Lys Glu Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu
465   470   475   480

Lys Glu Glu Leu Glu Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His
            485   490   495

Pro Asp Pro Asp Ala Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg
        500   505   510

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Arg Arg Gln Pro Gln Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu
        515             520             525

Glu Glu Lys Gln Glu Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu
        530             535             540

Glu Glu Glu Pro Glu Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro
545             550             555             560

Ile Ser Ser Ala Pro Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro
            565             570             575

Asn Thr Pro Gly Asp Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu
        580             585             590

Asn Ser Pro Asp Gln Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly
        595             600             605

Leu Ser Leu Lys Leu Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser
    610             615             620

Val Lys Arg Lys Lys Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu
625             630             635             640

Asp Glu Asp Ser Asp Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu
            645             650             655

Asp Tyr Gly Glu Asp Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr
        660             665             670

Glu Glu Lys Arg Lys His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr
        675             680             685

Ala Lys Pro Glu Leu Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp
    690             695             700

Ser Ile Leu Met Glu Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile
705             710             715             720

Ile Glu Tyr Ile Gly Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys
            725             730             735

Ser Lys Val Met Ala His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val
        740             745             750

Ala Met Val Leu Asp Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp
        755             760             765
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Arg Leu Leu Ile Tyr Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
     770   775   780

<210> 80
<211> 735
<212> PRT
<213> Homo sapiens

<400> 80

Lys Cys Gly Leu Val Leu Ser Trp Lys Arg Val Gln Gly Ala Ser Gly
1   5   10   15

Lys Leu Gln Ala Phe Gly Phe Cys Glu Tyr Lys Glu Pro Glu Ser Thr
              20   25   30

Leu Arg Ala Leu Arg Leu Leu His Asp Leu Gln Ile Gly Glu Lys Lys
        35   40   45

Leu Leu Val Lys Val Asp Ala Lys Thr Lys Ala Gln Leu Asp Glu Trp
     50   55   60

Lys Ala Lys Lys Lys Ala Ser Asn Gly Asn Ala Arg Pro Glu Thr Val
65   70   75   80

Thr Asn Asp Asp Glu Glu Ala Leu Asp Glu Glu Thr Lys Arg Arg Asp
              85   90   95

Gln Met Ile Lys Gly Ala Ile Glu Val Leu Ile Arg Glu Tyr Ser Ser
              100   105   110

Glu Leu Asn Ala Pro Ser Gln Glu Ser Asp Ser His Pro Arg Lys Lys
        115   120   125

Lys Lys Glu Lys Lys Glu Asp Ile Phe Arg Arg Phe Pro Val Ala Pro
     130   135   140

Leu Ile Pro Tyr Pro Leu Ile Thr Lys Glu Asp Ile Asn Ala Ile Glu
145   150   155   160

Met Glu Glu Asp Lys Arg Asp Leu Ile Ser Arg Glu Ile Ser Lys Phe
              165   170   175

Arg Asp Thr His Lys Lys Leu Glu Glu Glu Lys Gly Lys Lys Glu Lys
              180   185   190

Glu Arg Gln Glu Ile Glu Lys Glu Arg Arg Glu Arg Glu Arg Glu Arg
        195   200   205

Glu Arg Glu Arg Glu Arg Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
    210   215   220

Arg Glu Arg Glu Lys Glu Lys Glu Arg Glu Arg Glu Arg Glu Arg Asp
225   230   235   240

Arg Asp Arg Asp Arg Thr Lys Glu Arg Asp Arg Asp Arg Asp Arg Glu
                245   250   255

Arg Asp Arg Asp Arg Asp Arg Glu Arg Ser Ser Asp Arg Asn Lys Asp
                260   265   270

Arg Ser Arg Ser Arg Glu Lys Ser Arg Asp Arg Glu Arg Glu Arg Glu
        275   280   285

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu
    290   295   300

Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Lys Asp
305   310   315   320

Lys Lys Arg Asp Arg Glu Glu Asp Glu Glu Asp Ala Tyr Glu Arg Arg
                325   330   335

Lys Leu Glu Arg Lys Leu Arg Glu Lys Glu Ala Ala Tyr Gln Glu Arg
            340   345   350

Leu Lys Asn Trp Glu Ile Arg Glu Arg Lys Lys Thr Arg Glu Tyr Glu
        355   360   365

Lys Glu Ala Glu Arg Glu Glu Glu Arg Arg Arg Glu Met Ala Lys Glu
    370   375   380

Ala Lys Arg Leu Lys Glu Phe Leu Glu Asp Tyr Asp Asp Asp Arg Asp
385   390   395   400

Asp Pro Lys Tyr Tyr Arg Gly Ser Ala Leu Gln Lys Arg Leu Arg Asp
                405   410   415

Arg Glu Lys Glu Met Glu Ala Asp Glu Arg Asp Arg Lys Arg Glu Lys
                420   425   430

Glu Glu Leu Glu Glu Ile Arg Gln Arg Leu Leu Ala Glu Gly His Pro
        435   440   445

Asp Pro Asp Ala Glu Leu Gln Arg Met Glu Gln Glu Ala Glu Arg Arg
    450   455   460

Arg Gln Pro Gln Ile Lys Gln Glu Pro Glu Ser Glu Glu Glu Glu
465   470   475   480

Glu Lys Gln Glu Lys Glu Glu Lys Arg Glu Glu Pro Met Glu Glu Glu
             485   490   495

Glu Glu Pro Glu Gln Lys Pro Cys Leu Lys Pro Thr Leu Arg Pro Ile
             500   505   510

Ser Ser Ala Pro Ser Val Ser Ser Ala Ser Gly Asn Ala Thr Pro Asn
             515   520   525

Thr Pro Gly Asp Glu Ser Pro Cys Gly Ile Ile Ile Pro His Glu Asn
             530   535   540

Ser Pro Asp Gln Gln Gln Pro Glu Glu His Arg Pro Lys Ile Gly Leu
545   550   555   560

Ser Leu Lys Leu Gly Ala Ser Asn Ser Pro Gly Gln Pro Asn Ser Val
             565   570   575

Lys Arg Lys Lys Leu Pro Val Asp Ser Val Phe Asn Lys Phe Glu Asp
             580   585   590

Glu Asp Ser Asp Asp Val Pro Arg Lys Arg Lys Leu Val Pro Leu Asp
             595   600   605

Tyr Gly Glu Asp Asp Lys Asn Ala Thr Lys Gly Thr Val Asn Thr Glu
             610   615   620

Glu Lys Arg Lys His Ile Lys Ser Leu Ile Glu Lys Ile Pro Thr Ala
625   630   635   640

Lys Pro Glu Leu Phe Ala Tyr Pro Leu Asp Trp Ser Ile Val Asp Ser
             645   650   655

Ile Leu Met Glu Arg Arg Ile Arg Pro Trp Ile Asn Lys Lys Ile Ile
             660   665   670

Glu Tyr Ile Gly Glu Glu Glu Ala Thr Leu Val Asp Phe Val Cys Ser
             675   680   685

Lys Val Met Ala His Ser Ser Pro Gln Ser Ile Leu Asp Asp Val Ala
     690   695   700

Met Val Leu Asp Glu Glu Ala Glu Val Phe Ile Val Lys Met Trp Arg
705   710   715   720

Leu Leu Ile Tyr Glu Thr Glu Ala Lys Lys Ile Gly Leu Val Lys
          725   730   735